

Thursday 1st June	Day 1	Morning Session
-------------------------------------	--------------	------------------------

11.00am -12.30pm Main Auditorium

Paper Session: Response to Intervention Chair: John Everatt

Long term treatment, teacher and gender effects of a randomised reading intervention study: an application of structural equation modelling. **Ulrika Wolff (Gothenburg University)**

A Swedish multi-component intervention program has been developed and implemented in a randomised intervention study for 9-year olds. The intervention group (n=58) received 45 minutes of one-to-one instruction per day for twelve weeks. The control group (n=55) took part in ordinary classroom activities. Structured equation modeling gives the opportunity to examine relations between the latent variables phonological representation, phonological awareness, word decoding, text-reading fluency, reading comprehension, listening comprehension, spelling, RAN and non-verbal cognitive skills between groups and over time. Teacher effect and influence of gender are also examined. Results show significant effects of intervention on all measures but listening comprehension.

Exploring responsiveness to beginning reading instruction on first grade reading outcomes. **Stephanie Al Otaiba, Jeanne Wanzek (Florida Centre for Reading Research)**

Schools are beginning to implement multi-tier response to intervention (RTI) models to improve reading outcomes and to accurately identify students with learning disabilities. The present study was part of our larger ongoing longitudinal RTI investigation within the Florida Learning Disabilities Center grant. We observed reading instruction in 20 kindergarten classrooms in 7 schools and predicted students' first grade reading performance based upon their kindergarten growth and end of year reading performance (n = 203). Results indicate that the steeper the students' trajectory to a satisfactory kindergarten outcome, the less likely they were to demonstrate good performance in first grade. Implications for future research and RTI implementation are discussed.

School-based effectiveness of the ABRACADABRA web-based literacy programme: A randomised control trial with school professional partnership. **Robert Savage (McGill University, Montreal), Noella Piquette-Tomei (University of Lethbridge, Alberta), Donna Wesley (Aspenview School Board, Alberta)**

We examined effectiveness of school board (Local Education Authority) supported use of ABRACADABRA (<http://abralite.concordia.ca>), a free-access web-based reading intervention program, on kindergarten (Reception) and Grade 1 (Year 1) students literacy growth in Canada. Trained classroom teachers (n = 28) used ABRACADABRA in their classes for 20 hours. Children (n=134) were exposed to ABRACADABRA activities while students in control classes (n=214) followed the regular provincial literacy program. Preliminary analyses of pre-post-test gains in literacy reveal significant differences favouring ABRACADABRA. Findings also suggest that schools own consultants can help teachers to take ownership in implementing ABRACADABRA. This structural approach contributes to literacy growth among many students.

The Effects of Multimedia on Early Literacy Development of Children at Risk: A Meta-Analysis. **Victor Van Daal (University of Stavanger)**

A meta-analysis of 35 studies was conducted to review and analyze the effect of multimedia on the early literacy development of children at risk of literacy underachievement. Large effect sizes were found for Phonological Awareness, Concepts of Print, Vocabulary, and Reading. Medium effect sizes were found for Comprehension, Non-word Reading, and Alphabetic Knowledge. However, large effect sizes for Vocabulary, Reading, and Alphabetic Knowledge were also found for children at risk who did not participate in a multimedia intervention. It is suggested that multimedia literacy-applications can be beneficial to children at risk of literacy underachievement, especially with respect to Phonological Awareness, Concepts of Print, Comprehension and Non-word Reading.

11.00am -12.30pm Queens Suite 1

Symposium: Understanding comorbidity between dyslexia and other developmental disorders Chair: Debbie Gooch

Attention and motor skills in children at risk of dyslexia. **Debbie Gooch, Hannah Nash, Maggie Snowling, Charles Hulme (University of York)**

This paper addresses the question of whether there are signs of comorbid difficulties in children at risk of dyslexia before they learn to read. At the 2nd phase, of a 5 year longitudinal study, children classified as family risk for dyslexia (FR, N=87), language impaired (LI, N=47) or typically developing (TD, N=92) completed measures to assess motor skills, behavioural inhibition and attention alongside measures of language and early literacy. Group differences were examined and the relationships between children's early language and literacy skills and their performance on tasks measuring motor and attention skills were explored. The findings will be discussed with reference to theories of comorbidity.

The association between reading, attention and timing performance in a time-reproduction paradigm. **Emma Birkett (Aston University)**

Studies have demonstrated differences in accuracy and variability of motor timing in participants with dyslexia and ADHD. Here a time reproduction, finger-tapping continuation task, was administered alongside measures of attention and literacy to adults and children (with and without dyslexia). Measures of timing were contrasted with measures of literacy and attention to establish whether different components of the timing response were separately related to reading and attention. The data will be discussed with reference to the proposal that deficits in processing stimuli of a temporal nature may form a 'domain-general' deficit underlying the developmental disorders that commonly overlap in individuals.

Motor difficulties: early indications of dyslexia or signs of an overlapping phenotype? **Kim Rochelle (Aston University)**

Children with dyslexia have been reported to have weaknesses in some motor skills (e.g. poor balance and postural instability). However, a meta-analysis suggested that comorbid attention difficulties could be the link between this and reading (Rochelle & Talcott, 2006).

Here children with dyslexia were compared to typically developing and reading age matched controls on measures of cognitive ability, reading, symptoms of inattention and hyperactivity and postural stability. Children with dyslexia had greater variability in postural sway compared to the control groups. Inattention and hyperactivity were stronger predictors of sway magnitude than reading. The implications of weak postural control and impaired attention for a child's performance in the classroom are considered.

Attention profiles in children with math and literacy difficulties. **Kristina Moll, Silke Goebel, Maggie Snowling (University of York)**

Deficits in attention often co-occur with literacy and arithmetic problems. However, the impact of different aspects of attention on these scholastic skills is not clear. This paper compares the attention profiles of children with reading difficulties, arithmetic difficulties, reading+arithmetic difficulties to controls. We tested 93 children, aged 6-11 years, on different aspects of attention and obtained parent ratings of child behaviour. The study aims to determine whether (1) there are differences in attention profiles of children with reading difficulties compared to those with arithmetic difficulties, (2) the comorbid group shows a combination of the attention profiles associated with the single conditions or whether they show a different pattern of performance across measures.

Comorbidity between mathematics and reading difficulties from a genetic perspective: Findings from the Twins Early Development Study. **Yulia Kovas (Goldsmiths, University of London), Nicole Harlaar (Mind Research Network, Albuquerque), Claire Haworth (King's College), Stephen Petrill (Ohio State University), Sophia Doherty (King's College), Robert Plomin (King's College)**

Recent twin research has revealed a strong genetic basis to both mathematics and reading. Here we present results from the Twins' Early Development Study (TEDS) demonstrating complex patterns of aetiological relationships among mathematics and reading. Focusing on the data from over 4000 pairs of 10-12 year-old twins, we discuss four major findings. First, our results suggest strong aetiological relationships between low and normal performance. Second, we find substantial genetic overlap between reading and mathematical disability. Third, the aetiological relationships between mathematics and different aspects of reading (decoding vs. comprehension) are not uniform. Fourth, different aetiological links seem to exist for timed vs. untimed measures of reading and mathematics. These findings highlight the complexity of the aetiology of the maths-reading overlap and identify potential implications for conceptualising learning disability.

11.00am -12.30pm Queens Suite 2

Paper Session: Phonological Awareness **Chair:** Becky Larkin

The relationship between phonological awareness and reading difficulties in Mandarin-speaking poor readers. **Li-Li Yeh (University of Sheffield)**

We investigated phonological awareness skills of Mandarin-speaking Taiwanese typical-developing and poor readers who learn two writing systems: Zhuyin Fuhao (a semi-syllabary for transcribing Mandarin), and traditional Chinese. These children were assessed twice, at the beginning of first and second grade (mean age 6;7 and 7;7). Comprehensive assessment of phonological awareness was carried out using both implicit (matching) and explicit (sounding out) tasks. Zhuyin Fuhao and traditional Chinese literacy skills were also assessed. Results will be interpreted within the framework of psycholinguistic theory in order

to identify shared cognitive processes underpinning phonological awareness and literacy acquisition.

Exploring the phenotype of phonological reading disability as a function of the phonological deficit severity: Evidence from the error analysis paradigm. **Haitham Taha (University of Haifa)**

Reading error analysis was used as a tool for learning about the phenotype of dyslexia and to learn about the different subtypes of the disability. Reading inaccuracies can be associated with some other developmental disabilities. The main aim of the study was to investigate predominate error types that characterize the phenotype of the phonological reading disability as a function of the phonological awareness severity and to compare them with those of the readers with attention deficit disorder. The results revealed a unique profile of errors for the different disabilities. The results can contribute to the clinical field reading difficulties.

Graphophonemic processing: A comparison of dyslexic readers and deaf readers of French. **Rachel Berthiaume, Daniel Daigle (Université de Montréal)**

Considering the phonological deficit characterizing both dyslexic readers and deaf readers, the purpose of this study was to compare both populations for phonological processing. 16 dyslexic readers matched to 16 deaf readers were compared to 21 younger reading control students (CL) and to 24 age control students (CA). We used two graphophonemic tasks varying in terms of cognitive constraints (CC- and CC+). For all groups, results indicate better scores on the CC- task than on the CC+ task. Whatever the task, dyslexic subjects, deaf subjects and CL have comparable results, but perform more poorly than CA.

Relating braille reading difficulties to developmental dyslexia. **Anneli Veispak, Bart Boets, Pol Ghesquière (K. U. Leuven)**

A proportion of individuals with visual impairment have specific reading difficulties which cannot be easily explained. The existence of Braille dyslexia has been proposed. The pan-modal temporal processing deficit has been assumed to be causal to both the phonological and literacy problems observed in dyslexia. Struggling Braille readers have been reported to have difficulties with phonological awareness and tactual perception, domains also affected in dyslexics. Hence, we investigated the relation between auditory temporal-, phonological-, tactile processing and reading measures in Braille readers from Estonia, Belgium and the Netherlands.

11.00am -12.30pm Queens Suite 3

Paper Session: Dyslexia support in Higher education
Jamieson

Chair: Claire

Nursing students with dyslexia – The impact on clinical placement. **Brendan Greaney (Coventry University)**

The study explored the impact of dyslexia on dyslexic nursing students through their own personal experiences within the clinical placement area and the attitudes of their mentors to their dyslexia whilst on clinical placement. Dyslexia may affect a nurse or nursing student's ability to practice effectively. Support is provided in universities for dyslexic nursing students.

However there is limited evidence concerning the support they receive in clinical practice. Findings revealed a lack of understanding amongst mentors about dyslexia and additionally that dyslexic nursing students experience difficulty in a number of specific nursing tasks as well as fear of disclosure.

Supporting international students with SpLDs in HE. Sally Freeman (Nottingham Trent University and ADSHE), Glynis Clarke (Leicester University)

International Students seeking dyslexia screening in HEIs present a challenge for specialists working with students with SpLDs. Some are screened as 'at risk' and subsequently referred for further in depth assessment. Others are deemed to be the responsibility of the language school. With the increasing numbers of International Students attending UK universities (HESA, 2010) – and with targets to increase the admissions of international students (Ryan and Carroll, 2005) - the number of struggling students is also likely to increase. The Midlands ADSHE Group commenced a case study research project in October 2010 to examine the different approaches adopted in Midlands Universities. 6 students were selected and tracked throughout the academic year. The purpose of the project was to consider the challenges faced by these students including their presenting problems, support strategies and their academic performance in order to share practice and generate ideas for supporting international students with SpLDs. The Midland ADSHE Group will report their findings to the BDA Conference in Harrogate in March 2011.

Students with dyslexia: Study skills and learning support in Swedish higher education. Åke Olofsson, Astrid Ahl, Karin Taube (Umeå University)

In many European countries the number of dyslexic students entering higher education is increasing. The present study focuses on how university institutions and teachers are affected by students with dyslexia, the type of support offered by the higher education institutions and the strategies used by the students with these problems. Results from interviews and self-reports of 30 university students and 25 lecturers from 3 Swedish universities showed that the students use both compensation methods offered by the institutions and personal strategies. The results indicated that there are significant knowledge gaps in the educational institutions regarding students who have dyslexia.

Navigating DSA-land to get into HE support. John Conway (Royal Agricultural College)

Anecdotal and what little research has been done suggests that neither pupils, parents nor teachers are sufficiently aware of the requirements of HE to evidence dyslexia and access support. This paper rehearses the diagnosis needed, liaison with the disability service in an HEI and the process of obtaining a DSA such that a dyslexic student starts Freshers' Week with a full package of "support".

11.00am -12.30pm Queens Suite 4

Workshop: Adjustments in education and employment: evidence based practice. David McLoughlin (University of Buckingham), Alan Martin (University of Buckingham), Carol Leather (Independent Dyslexia Consultants)

Too often the adjustments made for dyslexic adults, both in education and employment, are just based on the fact that they have a specific learning difficulty. They do not address particular needs and are therefore unsatisfactory. They do not lead to improved performance. This session will describe how the results of research, as well as from individual assessment can be utilised to ensure that adjustments are relevant, effective and equitable. There will be interactive activities and proformas/checklists will be provided.

11.00am -12.30pm Queens Suite 5

Workshop: Quality assurance for specialist dyslexia 1:1 support.
Janet Skinner (University of Southampton)

As the academic nature of dyslexia specialist support is increasingly recognised, quality assurance becomes more important. Building on their 2009 guidelines for quality provision, the Association of Dyslexia Specialists in HE (ADSHE) has set up a working party to draft a set of quality assurance procedures. These include a register of suitably qualified practitioners, self-audit tools for tutors and institutions and guidelines for supervision to ensure quality of 1:1 support. This workshop will report on the working party's progress to date and will provide an opportunity for participants to contribute towards further development.

Thursday 1st June	Day 1	Afternoon Session
-------------------------------------	--------------	--------------------------

1.30 –3.00 pm Queens Suite 1

Symposium: Human Side of Dyslexia

Chair: Robert Burden

Rediscovering the Human Side of Dyslexia: **Robert Burden (University of Exeter)**

Robert Burden will begin the symposium by setting the background of common assumptions about dyslexia and the implicit definitions upon which they are based. He will emphasise the need to focus upon dyslexics as people with obstacles to overcome rather than representatives of a 'syndrome'. The importance of taking a socio-cultural perspective will also be made clear.

Dyslexia and Depression : The Hidden Sorrow: **Neil Alexander-Passe (London South Bank University)**

Based on a 2010 book of the same name, investigating secondary effects of having dyslexia. From N=29 dyslexic adults, N=22 had a depression diagnosis. Mean diagnosis age was 28.09yrs (depressives); 22.28yrs (non-depressives). Avoidance, social exclusion, self-harm, attempted suicide and post traumatic stress disorder were investigated. Most noted that their depression started at school, many self-harmed as primary school children - as a reaction of trauma/bullying at school by teachers and peers. Returning as adults to school for their children triggered many emotional reactions, e.g. seeing small chairs, the smell of floor cleaner etc. PTSD manifestations ranged from aggression towards teachers, to helplessness with gaining help for their dyslexic children.

Making sense of Dyslexia: Discourses of dyslexia and their relationships to self-perceptions and actions: **Ruth Gwernen-Jones (University of Exeter)**

Ruth Gwernen-Jones' presentation will draw together these perspectives by discussing discourses of dyslexia including What's wrong with me?, Thick/lazy, Patient, Student and Hemispherist. Each discourse is a way of thinking about difficulties with reading and writing that has implications for how positively a person is able to view themselves, and how motivated and able they are to learn to compensate for their difficulties. The impact of each discourse will be illustrated through findings from her PhD doing life history research with dyslexic adults in which she builds on work by Pollak (2005). It will be demonstrated that the issues focused upon by researchers and practitioners in order to support dyslexic people can actually be detrimental to dyslexic adults in their process of making sense of difficulties learning to read and write.

Alternative ways of understanding young people's attempts to form and maintain a positive self identity: The Resistance Accommodation Model: **David Armstrong (Edgehill University)**

David Armstrong will outline how his co-authored research study (Armstrong and Humphrey, 2009) sought to ascertain the views of young people with dyslexia about being described/labelled as dyslexic. A very brief overview of the remit, methodology and main

findings of this study will also be provided. Particular attention will be given to the richness of participants' own reaction to being dyslexic and to the complex psychological processes around identity that can be identified from this self-understanding. A conceptual model based around resistance-accommodation will be introduced in this context. Supporting the formation or maintenance of positive self-identity will be identified as an important practice for professionals working with young people post-assessment. The presenter, David Armstrong, will refer to the broader themes of the symposium in his contribution and also to key points made by previous speakers.

1.30 –3.00 pm Queens Suite 2

Workshop: Effective learning, classroom management and motivational strategies.
Gavin Reid (Independent Educational Psychologist)

The needs of children with dyslexia can be met within classroom. This can be achieved through effective learning and teaching and through motivational strategies to develop self-esteem and autonomy in learning. Emotional and social skills as well as lifelong skills in learning need to be considered. This workshop will aim to develop participants' understanding of the needs of children with dyslexia and how to deal with these in an inclusive school provision. It will provide insights into how children with dyslexia learn and how to make learning more effective using motivational strategies as well as acknowledging learning differences.

1.30 –3.00 pm Queens Suite 3

Paper Session: Identification Chair: Martin McPhillips

Dyslexia benchmarking exercise across Wales. **Debra McCarney (University of Wales, Newport)**

The Welsh Assembly Government commissioned a dyslexia benchmarking study across Wales. Information was collated from all 22 local authorities in order to compare and contrast current procedures to identify, assess and support pupils with dyslexic type literacy difficulties. Key conclusions showed wide variability in process and practices. This paper will present the data and its implications for planning, training and practice, with special reference to the bilingual nature of Welsh education.

Prevalence and identification of reading difficulties in secondary school pupils. **Sue Stothard (University of York and GL Assessment), Maggie Snowling, Charles Hulme (University of York)**

This presentation examines reading skills in a representative sample of 1,230 adolescent readers who participated in the standardisation of the York Assessment of Reading for Comprehension Secondary Test*. Results indicate significant variability in reading skills in secondary school. Within each year group, reading ages ranged from below 8 to above 16-years. Reading difficulties were more prevalent amongst EAL pupils, pupils with high social deprivation and male pupils. At least half of the pupils identified with reading difficulties were not on the school SEN Register, suggesting considerable unmet need with regard to literacy problems in adolescence.

The skill profiles of parents with dyslexia and their children: A longitudinal familial risk study. **Minna Torppa (University of Jyväskylä)**

The purpose of this study was to examine whether the assessment of the skills of parents with dyslexia could be utilized in prediction of their children's future skill profile. The data is part of Jyväskylä Longitudinal Study of Dyslexia. We assessed parental skills prior to children were born and children's skills between 0 and 10 years. Measures included phonological awareness, RAN, vocabulary, memory, spelling, and reading (accuracy and speed). Preliminary analyses suggest significant predictive links between the skills of the children and their parent. There were, however, clear differences between measures in how strong the link between parent's and their children measures was.

Repeat after me..." What do children's responses tell us about the foundations of literacy acquisition in the first and second language? **Sonali Nag, Margaret Snowling (University of York)**

When children repeat after us, their responses capture for us the multiple processes by which the input was received, analysed and produced. Not surprisingly then, the nonword and sentence repetition tasks have shown robust diagnostic power in the assessment of literacy difficulties. In this paper we will present findings from a cross-linguistic study to examine what may be universal and what may be language specific in phonology and syntax level linguistic information, and how these simple tasks can extend our understanding of children who are at risk for literacy difficulties in the first and second language.

1.30 –2.45 pm Queens Suite 4

Paper Session: Mathematics **Chair:** Nicola Brunswick

An Initial Survey of Dyscalculia in Higher Education. **Clare Trott , Simon Drew (Loughborough University)**

Increasing numbers of dyscalculic students are entering H.E., bringing a range of new challenges. Very little is known about their needs and dyscalculia research is currently highly focused on young children. In the UK, dyscalculic students are eligible for the Disabled Student Allowance (DSA), although there is little information about such provision. The paper will report on a recent survey of UK institutions of H.E., providing the first evidence of numbers of disclosed, dyscalculic students, their courses, their DSA provision and how support is delivered. The results will enable a more informed approach to dyscalculia provision in H.E.

Numeracy skills in dyscalculic children with and without literacy difficulties. **Silke Goebel, Kristina Moll, Maggie Snowling (University of York)**

Deficits in maths often co-occur with literacy problems. However, the impact of literacy difficulties on different aspects of numeracy skills is not clear yet. In this paper numeracy skill profiles of dyscalculic children with and without literacy difficulties will be compared to controls. We tested 93 children aged 6 to 11 in three cognitive aspects proposed to be related to numeracy skills: basic number representations, spatial skills, and magnitude processing. The main questions will be: (1) which cognitive aspects are affected in dyscalculic children? (2) Do dyscalculic children with additional literacy problems show different, additional or similar but more severe deficits than children with dyscalculia only?

3.30–5.00 pm Main Auditorium

Symposium: Children at family risk of dyslexia: nature and nurture. Chair:
Margaret Snowling

The early language and literacy skills of children at family risk of dyslexia. **Hannah Nash, Debbie Gooch, Charles Hulme, Maggie Snowling (University of York)**

This paper presents a description of the language skills of young children at family risk of dyslexia, measured during the second phase on an ongoing longitudinal study when the children were aged 4-5 years. Their language skills are compared to those of children with preschool language impairment and typically developing children of the same age. When assessed one year earlier, 31% of the at-risk group met research criteria for language impairment. The progress of children in this group will be compared to that of the remainder of the at-risk group and the two comparison groups. Those at-risk children who did not meet criteria for language impairment at the previous time-point did display weaknesses in phonology and expressive grammar, as well as in their letter sound knowledge. Tasks assessing speech and phonological processing, semantic knowledge, morpho-syntactic processing and early literacy skills were administered allowing us to measure the children's progress in these areas and their language profiles at the point of literacy instruction.

The home literacy environment of children at family risk of dyslexia. **Lorna Hamilton, Hannah Nash, Emma Hayiou-Thomas, Margaret Snowling (University of York)**

The home literacy environment of 4- to 5-year-old British children at family risk of dyslexia was compared with that of typically developing children. Two factors, Shared Storybook Reading (SSR) and Direct Literacy Instruction (DLI) emerged from factor analysis of parental questionnaires. SSR was associated with oral language skills for all children. DLI was correlated with measures of early literacy and phonological awareness for children at risk of dyslexia but less so for typically developing children. The role of explicit orientation to letter sounds in bootstrapping phonological awareness for children who do not pick this up implicitly is discussed.

The literacy skills of children with speech and language difficulties: The roles of language and speech.

Julia M. Carroll, Anna J. Cunningham (Warwick University)

It is well established that some children with speech and language difficulties go on to show literacy difficulties, and that phonological processing skills are associated with literacy development. In order to examine relationships between speech, language and phonological processing, a sample of 198 children were asked to complete a set of tasks in these areas. Eighty of the children had either speech and language problems or a family history of dyslexia. The children's reading accuracy and comprehension was tested again 3 years later. While children with speech and language difficulties were at increased risk of literacy difficulties overall, many children in this group did not show difficulties. Language and phonological processing shared common variance in the prediction of literacy. Difficulties also depended on the nature of the speech difficulties shown.

Dutch children with a family risk of dyslexia: differences between dyslexic and normal readers. **Peter F. de Jong, Anna Plakas, Anne Regtvoort. Aryan van der Leij, Elsje van Bergen (University of Amsterdam)**

We present two studies comparing Dutch children with family-risk of dyslexia (impaired and non-impaired) and TD controls. The three groups differed on underlying cognitive skills both before (in Study 1, N = 79) and after reading acquisition (in Study 2, N = 207). Study 1 indicated group differences in the precursors of letter knowledge and rapid naming; Study 2 showed differences in reading, spelling, phonological awareness, and rapid naming. The two at-risk groups differed in parental reading skills suggesting that those who go on to develop dyslexia have a higher genetic liability.

3.30–5.00 pm Queens Suite 1

Symposium: Challenged by Writing: The writing skills of individuals with dyslexia and associated difficulties. Chair: Vince Connelly

An investigation of the effect of writing task difficulty on pauses in handwriting for participants with and without dyslexia. **Anna Barnett, Rowan Boyles (Oxford Brookes University)**

Automaticity in handwriting contributes to higher writing functions (such as planning and reviewing). Pauses have been singled out as an important window on to the cognitive processes in writing. A digitising tablet was used to examine pauses in copying and compositional writing tasks in a dyslexia group and a non-dyslexia group. The dyslexia group paused significantly more often overall, and both groups paused more in composition than copying tasks. However, for the dyslexia group, the rate of short pauses was as high in copying tasks as in composition. Short pauses may then be an index for lower-order automaticity in writing.

Writing development in children with language difficulties. **Julie Dockrell (Institute of Education, University of London), Vince Connelly, Sarah Critten, Kirsty Walter (Oxford Brookes University)**

Children with specific language impairment (SLI) struggle with learning to write. They produce texts that are shorter with poorer sentence structure and less organization. They also produce more spelling and grammatical mistakes in their writing. These problems persist throughout schooling (Dockrell et al, 2009). This study considers the relationship between the writing, spelling and oral language skills of children with SLI at age 10 and children of the same age and also children with the same language ability. Results will be discussed with a view to contrasting the writing profiles of children with SLI from those children with dyslexia.

Writing performance in students with dyslexia: beyond single word spelling difficulties. **Emma Sumner, Vincent Connelly, Anna Barnett (Oxford Brookes University)**

Difficulties with reading and spelling are well established characteristics of dyslexia. However, students with dyslexia have reported writing as a persistent problem throughout education (Mortimore & Crozier, 2006). This study looks across a wide age range of individuals with dyslexia, compared to age-matched peers and a spelling-ability matched group. All completed a variety of measures assessing spelling ability, handwriting speed/fluency, vocabulary, working memory, and compositional quality. The Eye & Pen digital writing tablet provides an analysis of pause durations/distributions to highlight the writing profile. Results shall be explored in relation to current theoretical models of writing development; closing with suggesting potential avenues for future research.

Effects of dyslexia on writing processes. **David Galbraith (Staffordshire University), Veerle Baaijen (University of Groningen), Jamie Smith-Spark (London South Bank University)**

60 undergraduates with and without dyslexia were given 30 minutes to write an outline-planned article discussing the legalisation of euthanasia. Writing process data were collected using directed retrospection and key-stroke logs, and the quality of the resulting texts was measured. The results suggest that students with dyslexia have difficulty instantiating outlines in text. In contrast to students without dyslexia: they wrote better texts when they generated content during writing rather than during outlining; they paused for longer at all major text boundaries; and they consulted their outlines more frequently at non-text boundaries. Possible causes of these differences will be discussed.

Challenged by Writing: The writing skills of individuals with dyslexia and associated difficulties. **Vincent Connelly (Oxford Brookes University), Julie Dockrell (Institute of Education, University of London), Anna Barnett (Oxford Brookes University)**

Poor writing is a barrier to educational progress for children with dyslexia. Children with dyslexia achieve lower levels of success in written public exams and writing, as a barrier to progress, even persists in university students where they do less well than their peers. Thus, an appraisal of the difficulties these children experience in learning to write is long overdue. This will be a review linking reading, spelling and writing research to show what predictions we can make about the writing development of individuals with dyslexia and the state of current research linked to current theory.

3.30–5.00 pm Queens Suite 2

Paper Session: Dyslexia in Higher Education Chair: Kim Rochelle
Diagnosing dyslexia in higher education: **Maaïke Callens (University of Ghent)**

Usually, developmental dyslexia is diagnosed in the early stages of learning to read and write. However, there is an increasing need for (re)assessment in higher education. Diagnosing dyslexia in young adults is not as straightforward as it is in children attending primary school. In this study a wide spectrum of cognitive tests and recently developed dyslexia tests in the Dutch language were administered to one hundred students with dyslexia and a control group of one hundred students without learning disabilities. Factor analysis on these data is used in an attempt to optimize the diagnostic process of dyslexia in young adulthood.

Cognitive assessment, study skills and personality inventory in postsecondary students with dyslexia. **Wim Tops (University of Ghent)**

A growing number of students with dyslexia enroll in higher education. However, little is known about their (meta)cognitive profile and the impact of their cognitive difficulties on their studies. In our study 100 students with dyslexia matched with 100 students without a learning disability were broadly tested on a large scale of cognitive functions, study skills and on a personality inventory. The students with dyslexia reported more difficulties with a range of study skills and more fear of failure than the controls, but for the rest had nearly identical

personality profiles. The implications for guidance protocols for students with learning disabilities in higher education are discussed.

What counts as progress in developing reading skills in the context of adult literacy?
What are the issues in using tools to measure this? **Sue Partridge**

This conference paper covers one aspect of my research, the quest for suitable measures that capture small amounts of progress in reading. I include an outline of my research and my findings relating to fluency, vocabulary and comprehension. I elucidate some of the technical issues with assessment in this field and the importance of learner profiling. I highlight the paucity of research on adults' reading skills.

Identifying dyslexic students in higher education: A preliminary study of the validity of a Danish test battery. **Katrine Hammer Bønnerup, Mette Wittorff Schmidt, Anne Leth Pedersen (University of Aarhus)**

In the absence of official tests developed for HE, Danish dyslexic students are identified through tests not validated for students at HE-level. This paper presents the findings of a study of the validity of seven tests, comparing the results of dyslexic students and those of students without self-reported literacy problems. While indicating statistically significant differences in all tests, the findings questioned the validity of five tests due to substantial overlaps between the results in the two groups. However, two tests, developed for HE, showed minimal overlaps. Possible explanations, including the correlation between cognitive abilities and compensatory strategies, will be discussed.

3.30–5.00 pm Queens Suite 3

Workshop: Dyslexia specialists are not just literacy specialists.
Bernadette McLean (Helen Arkell Dyslexia Centre), Sheena Bell (University of Northampton), Frances Bloom (Independent Consultant)

Dyslexia specialists are not just literacy specialists. The best training courses for specialist teachers make clear links between theory and practice and the trainees are taught how to develop and deliver individualised multisensory teaching programmes subsequent to in depth diagnostic assessment which determines each individual learner's strengths and weaknesses. The presenters, experienced deliverers of specialist dyslexia training, have recently been involved in developing the OCR SpLD courses. Based on this, they will deliver a practical session on the joys and hazards of training specialist teachers and assessors and ensuring that candidates qualify as effective professionals who can make a difference to learners with dyslexia of all ages.

3.30–5.00 pm Queens Suite 4

Workshop: Diagnosing special educational needs in multilingual children.
Margaret Tiffin-Richards (English4Uth), Heidi Amri (Psychological Practice, Berlin, Germany)

Best practice procedure in diagnosing specific learning difficulties in multi- and monolingual children with dyslexia attending international or bilingual state schools in Germany is presented. The relevant different language test procedures in areas of emotional adjustment, cognitive development and academic achievement are covered with reference to the difficulties of assessing only in their second language. A comparison of special educational

provision in bilingual settings and the different local regulations is shown. Criteria for assessing which language is stronger and guidelines/issues/considerations for advising which language to use for further education are discussed. An account of the different assessment accommodations provided by the different external examination boards for candidates with special needs is included.

3.30–5.00 pm Queens Suite 5

Symposia: Visual Attention in Dyslexia **Chair:** Liz Moores

Specificity of the visual attention span disorder in developmental dyslexia. **Sylviane Valdois (Université Pierre Mendès)**

A visual attention span disorder which typically dissociates from phonological problems has been highlighted in developmental dyslexia (DD) through tasks of letter report. We will provide evidence that this disorder is a visual parallel processing disorder which is not sensitive to the verbal aspects of the letter report tasks but extends to non verbal material. It will further argue that this disorder differs from the orienting spatial attention problem associated to phonological problems in DD. The overall findings suggest that two different kinds of visual attention processes which can be selectively disturbed in developmental dyslexia are involved in reading.

Isolating global factors in developmental dyslexia: an approach based on the rate-amount model (RAM). **Pierluigi Zoccolotti (Università degli studi di Roma La Sapienza)**

We examined the RTs of Italian dyslexics to orthographic (letters, bigrams, words varying for length and frequency, and nonwords) and non-orthographic (pictures) stimuli. Dyslexics were slower across all conditions. Based on the rate-amount-model (Faust et al., 1999), the global factor distinguishing dyslexics and controls refers to reading (and making lexical decisions on) letter strings whether or not they have a lexical value. In contrast, tasks requiring the identification or matching of graphemes (or bigrams) or the identification of pictures did not consistently load on this factor. We proposed that dyslexics are impaired in the pre-lexical analysis of letter strings.

Visual attention in dyslexia: a psychophysical approach. **Neil Roach (University of Nottingham)**

Results will be presented from a series of studies investigating attentional processing in dyslexic adults using spatial cueing in conjunction with a single-fixation search paradigm. This approach has several strengths: (i) it provides rigorous control over non-attentional visual factors; (ii) it allows accurate discrimination of good and poor readers at an individual level and (iii) it produces results that can be interpreted via the standard theoretical model used to predict basic sensory thresholds. Together our results suggest that relative to normal readers, many dyslexic individuals have difficulty selecting or prioritising task-relevant visual information to optimise their performance.

Adults with dyslexia are able to use cues, but not to exclude distractors **Liz Moores Rizan Cassim, Cristina Romani (Aston University)**

We present three experiments which investigated attention in adults with dyslexia (AwD). Experiment 1 showed that AwD can use cues to orient attention and enhance spatial resolution. Experiment 2 showed that AwD and controls have (i) an equal ability and (ii) a similar time course to use the size of a circular cue to constrain and focus attentional resources. Experiment 3 suggested that although AwD use cues to enhance visual search performance, cueing did not remove the effects of distractors. The performance of AwD was also modulated by stimuli spacing, such that performance was worse when stimuli were closer together.

Thursday 2nd June 2011	Day 1	Evening
--	--------------	----------------

Poster session : 6.30pm – 7.30pm Level 5 and Queen’s Suite Upper Level

1: Carroll, J. What skills are impaired in dyslexia at the onset of reading? A prospective study of children with reading difficulties.

444 children in their first term at school completed a battery of tasks measuring phonological awareness, verbal short-term memory, speech rate, auditory perception, motor skills, print knowledge, balance, IQ and speed of processing. Reading skills were retested at the end of year 1, year 2 and year 3. Poor readers showed significantly lower scores on each of the Time 1 measures, except balance, and were significantly more likely to have deficits in each area. Only a small minority showed no deficits. However, no single deficit was a necessary precursor to reading difficulties.

3: Chatzispiridou, E. The impact of monaural beats in the range of beta and theta frequencies on the attention and short-term memory of adults with dyslexia.

My proposal concerns a pre and post-test intervention. I base my hypothesis on the research concerning dyslexia, which highlights the deficits on the short-term and verbal memory of individuals with dyslexia, and the research on the impact of frequencies on humans. The research will involve 5 groups of college students diagnosed with dyslexia. By using these groups, I will be able to 1. identify whether and which of these frequencies are most effective 2. whether there is need for entrainment 3. and compare the effectiveness of a phonological intervention to the "frequencies intervention".

5: Cherodath, S. Singh, N. (National Brain Research Centre, India)

Patterns for reading development in children learning two scripts

Normative reading patterns in monolingual children cannot explain learning to read in two scripts. The current study presents reading developmental profiles in English and Hindi for 200 biscriptal children between 5-7 years. Our data suggest letter identification skills and sound-letter conversion knowledge in both languages at five with rapidly progress to word reading by 7 years. In particular, even five year-olds exhibit word reading via sound assembly. Thus, despite disparity in transparency and visual complexity of the two scripts, children cope remarkably well with increased cognitive load.

7: Chiara, V.M. Reading acquisition among Italian and English children: a cross-linguistic study

Reading acquisition of 207 Italian and 90 English children matched for age and years of schooling were examined. The effect of regularity, frequency, lexicality and length (and that of global information processing factors) were examined using comparable lists of stimuli in the two languages. Children adapted their reading strategies to the characteristics of the language to be learnt. At an early phase of literacy acquisition, a similar reading strategy based on grapheme-to-phoneme conversion was used in both languages. With increased reading experience, the inconsistency of English orthography induced older English children to rely on larger units of analysis.

9: Clarke, R. (University of Huddersfield Dyslexia Research Project) A study into optimal teaching and learning strategies for dyslexic arts students (Art & Design, Music, Drama) at the University of Huddersfield.

This project has emerged from identification of particular learning needs among arts students across the university where there are higher levels of dyslexia than are reported. Published research (Steffert 1997, RCA 2004) shows that nationally there is a higher incidence of dyslexia among arts students. However, support methods for dyslexic arts students tend to be reactive and typically, are addressed in assessment by providing longer time to complete written assignments. Using examples of best practice in the field and through consultancy advice of renowned experts, this paper will share the progress of our research into the design and evaluation of modes of teaching, learning and assessment which may offer more flexible alternatives to meet arts students' needs.

11: Colledge, M. (London Metropolitan University) Guiding dyslexic students through their 3rd Year undergraduate dissertation - case studies by a mainstream English Language Studies Lecturer who has the Practising Certificate.

There is an increasing number of reports on dyslexic and other neuro-diverse students in university, but a dearth of reported research on these students and the writing of dissertations, apart from Symonds (2009). The challenges of the dissertation (copious amounts of reading, greater responsibility for time management, 7000-9000 words of writing) are great and the stakes are high, with the module counted for double marks. The paper considers how these students may be supported from within the discipline when undertaking this third year undergraduate dissertation or research project. The author works within BA English Language Studies.

13: Costanzo, F. Menghini, D. (IRCCS Children Hospital Bambino Gesù, Rome) Oliveri, M. Caltagirone, C. (IRCCS Santa Lucia Foundation, Rome), Vicari, S (IRCCS Children Hospital Bambino Gesù, Rome)

High Frequency rTMS: a new tool in remediating dyslexia?

This study is aimed at verifying if the facilitatory effect of high frequency (hf) repetitive transcranial magnetic stimulation (rTMS) on the left inferior parietal lobe (IPL) and the left superior temporal gyrus (STG) could improve reading performance of adult dyslexic. Results showed reduced errors in noword reading after stimulation of both the left and right IPL and in text reading after stimulation of the left STG. The stimulation of left IPL also determined a reduced onset in word reading. Due to its effectiveness in improving reading performance, hf-rTMS may prove useful as a remedial reading technique in dyslexia.

15: Dykes, A. (University of Southampton PhD Researcher in Dyslexia)
Dyslexia and Locus of Control - exploring an emotional aspect of dyslexia in an HE context

Dyslexics' feelings and attitudes to their own dyslexia is an under-researched area, particularly amongst adults, especially in HE; This doctoral research project aims to build on the researcher's earlier findings presented in an MSc Dissertation where data collected from dyslexic students at University revealed patterns in profiles constructed as innovative graphical presentations of the evaluation of individuals' locus of control using 5 psychological sub-constructs. When taken together with students' commentaries that expressed how they

felt about their own dyslexic learning differences much was revealed about the emotional aspects of dyslexia and how this impacts on study at Higher Education level.

19: Esser, K. (Southampton Solent University)

Supporting the Writing Process with Dyslexic HE Students

This presentation explores some of the issues and debates relating to predominantly visual and right-brained strengths attributed to individuals with dyslexia. It then outlines some of the areas of difficulty faced by dyslexic higher education students in the context of the demands of academic writing, an area with which many of them are unfamiliar. It then makes some positive suggestions as to how staff supporting such students can address these difficulties constructively and assist students in developing approaches to academic writing which are in tune with their more visual thinking style. The notion of visual 'giftedness' is also explored.

21: Firman, C. (SpLD Service Malta)

Facing New Challenges at Secondary School Level

Dyslexic children encounter significant difficulties when moving from primary to secondary school. This presentation seeks to give an overview of the outcomes of interviews carried out with students in a new learning environment at the start of the academic year. Recommendations are put forward as to how students could be better supported at secondary school level. The issue of languages, particularly in relation to bilingualism will be explored and discussed.

23: Haruhara, N. (Mejiro University) An investigation on the oral reading speed in the Japanese language of typical children and children with developmental dyslexia

We investigated the causal cognitive functions of reading speed in Japanese children by using two types of Japanese syllabaries and Chinese characters. Participants consisted of typical children and children with developmental dyslexia from grades 1 to 6. Results suggested that the significant predictors for reading speed were duration and the number of errors on RAN and correct response on non-word repetition. This finding suggests that reading speed is related to automatic processing and phonological awareness. Since reading speed and errors were not correlative, it was necessary that we intervene with at-risk children with regard to reading accuracy and fluency, respectively.

25: Jhingoor, N. Brunswick, N. Coulson, M. (Middlesex University)

'A picture is indeed worth a thousand words': A qualitative investigation of the preferred learning methods of dyslexic students in HE.

All students should have the opportunity to access educational materials presented in a way which will maximise their potential. This paper will report on a study which has attempted to match the style of presentation to the learning preferences of dyslexic and non-dyslexic students in HE. Learning styles of the students were identified using the Index of Learning Styles and R-SPQ-2F, and learning outcomes were assessed following exposure to different multimedia presentations (text only; text and sound; text and images). Differences in performance between the two groups are identified, and implications of the findings in relation to dyslexia are discussed.

27: Krejcova, L. (Charles University, Prague, Czech Republic), Pospisilova, Z. (DYS-centrum Praha, o.s., Prague, Czech Republic)

Evaluation of an Intervention Programme for Secondary School Students with Dyslexia

The paper will introduce an intervention programme for secondary school students with dyslexia and its process of evaluation. The programme consists of twelve units which involve training of reading comprehension, planning, verbal abilities, spatial orientation, social skills. Students are also supported to identify their learning preferences and work individually according to their learning styles. The programme considers traditional dyslexia symptoms and attempts to support students' competences and abilities despite the dyslexia problems. The programme was evaluated via case studies with approx. 20 students. The students were assessed before and after the programme via several methods. The results are currently analyzed.

29: Kuwait Dyslexia Association Kuwait Dyslexia Friendly School (DFS) Project

Screening Stage Kuwait Dyslexia Association (KDA) did a study, which showed that dyslexia did exist in Kuwait. Kuwait Ministry of Education (MOE) accepted the study and asked for advice from KDA on how to face dyslexia in its schools. KDA suggested applying the British project of Dyslexia Friendly School (DFS). The MOD after evaluating the project and accepted adapting it, requested KDA to help in applying it. In 2005 MOE created a committee called the High committee for Dyslexia in Kuwait Government School which was the first committee ever created by ministry of education in the world to help dyslexic student in all government school. KDA was appointed in the committee with three members representing the association. The project started with 2 primary school in two governorates out of the six existed in Kuwait as a trial period. In 2010 MOE after realizing the success asked to implement the project for all government schools in Kuwait, which are 650 schools. We started to apply the project for all six governorates schools by choosing a primary school in each governorate. In this study will show how the result of the first screening of the sample kindergartens schools that feed those primary schools that will adopt DFS project was done. DFS project is a pioneer project we at KDA hope that its success is very important not only for Kuwait but also for all Arab countries if not others. Chairman Mohammed Yousuf Al-Qatami Kuwait Dyslexia Association

31: Lobier, M. Valdois, S. (Laboratoire de Psychologie et Neurocognition, UPMF) Dubois, M. (Universite Libre de Bruxelles and FNRS)

A visual processing speed deficit for multi-element processing in dyslexia

Recent studies have found evidence for reduced multi –element processing in dyslexic individuals, reflecting a visual attention span disorder in developmental dyslexia (Bosse, 2007). In order to better specify this deficit, multi-element processing was explored within the Theory of Visual Attention (TVA) (Bundesen, 1990) framework. Visual processing speed, as defined by TVA, was estimated for single and multiple letter conditions in non-impaired and dyslexic children. Results show that the difference between single and multiple letter processing speed is larger for dyslexic than non-impaired children. This suggests that the VAS deficit is specific to parallel visual processing of multiple elements.

33: Loff, A. Moll, K. Snowling, M. (University of York) Morphological Awareness: How is it related to reading?

Although studies show that morphological awareness is related to word reading beyond phonological awareness, and contributes to reading comprehension, the role of morphology in learning to read is not well understood. The data presented is part of a 3-year longitudinal study following two groups of children; children at risk of reading difficulties and peer controls. We aim to disentangle the relationships between vocabulary, phonological awareness and morphological skills (the ability to inflect verbs and to add derivational endings to words). Preliminary results show that morphological skills are strongly related to vocabulary knowledge and are marginally significant predictors of reading comprehension.

35: Lorås, H. (Sør-Trøndelag University College, Norway), Talcott, J.B. (Aston University), Stensdotter, A-K. (Sør-Trøndelag University College, Norway), Sigmundsson, H. (Norwegian University of Science and Technology)

The relationship between postural control and reading in a non-clinical sample of adults

In research on developmental dyslexia, poor literacy skills have been associated with impaired postural control. It is not known whether this relationship displays as a behavioral continuum or occurs as a disorder specific trait. Furthermore, recent studies have attributed this association to co-existing symptoms of ADHD. In the present study, students (n = 100) from a university college were assessed on two reading tasks (RSN and word chains) and postural control (force plate). Subjects were also screened with an ADHD symptom checklist. Self - reported symptom levels were not above chance level, and no relationship was observed between reading tests and postural control.

37: Martinez Perez, T. Majerus, S. Poncelet, M. (University of Liège)

Specific contribution of short-term memory for serial-order information to early reading acquisition: A longitudinal study

Early reading acquisition skills have been linked to verbal short-term memory (STM) capacity. However, the nature of this relationship remains controversial. Here we distinguished between STM for item and order information based on recent studies showing that STM for order is an important and independent predictor of oral language development. Tasks maximizing STM for serial-order or item information and reading tests were administered to 42 children from kindergarten through 1st grade. Results showed that order STM capacity measured at kindergarten predicted phonological recoding abilities at 1st grade. Implications of poor serial-order STM for reading acquisition in dyslexia are discussed.

39: Murphy, F. (University of Salford)

On being dyslexic: Student Radiographers' perspectives

This study provided an insight into life as a dyslexic student radiographer, identified barriers and risks in clinical training, and developed recommendations for support. The paucity of research within the radiography profession is worrying, with attention focused only on the support provided by HEIs. The data revealed six distinct themes of visualizing the disability, self protection, strengths and talents, time, the badge of disability and adjustments and support. Students reported difficulties and prejudices and little structured support in the clinical environment.

41: Newman, D. (Southern Connecticut State University) Adaptive Software: Is it the key to improving reading in struggling adolescent readers?

Given the diverse nature of difficulties in adolescents who continue to struggle with reading (i.e., decoding, language, fluency, motivation), a Literacy Lab was developed to address explicit areas. Following one school year of participation, students were measured to have markedly improved reading fluency and comprehension, areas which were previously reported to have plateaued. The Lab was different from prior remediation as it focused on the use of adaptive software to provide extensive, individualized practice in areas of need at appropriate levels. Program implementation and progress of the participants along with research that supported the use of software will be shared.

43: Oregon, F. (SSAT)

ADHD and AS: A very curious couple

Attention Deficit Hyperactivity Disorder and Asperger's Syndrome, though two distinct terms, often overlap and this presentation will explore and discuss specific options for teaching and management of children and young persons: The content will include: Understanding the specific symptoms of both conditions and those of co-morbid issues including Dyslexia, ODD and CD; What it means to make reasonable accommodations in line with the DDA in terms of early identification and school-based provision; Assessing a range of tried and tested strategies for classroom based options of learning and behaviour management of children with ADHD/AS; Looking at the principles of socialisation options and how best deal with non classroom time including breaks and lunchtime; Considering the range of options for management including the issue of medication, coaching and counselling; Working with parents and how best to support supervisors with specific children.

45: Reid, A. Talcott, J.B. (Aston University)

A multiple case study contrasting the predictions of the main theories of dyslexia on the neural correlates of reading deficit: Evidence from fMRI.

The phonological, magnocellular and cerebellar deficit theories postulate different underlying causes of dyslexia. However, the majority of behavioural and neuroimaging studies, motivated by these theories, have three shortcomings: 1) they mostly tested one underlying cause, postulated by one theory; 2) majority of them focused on detecting a deficit (e.g., cerebellar) without empirically demonstrating its relationship to reading disorder; 3) they relied on group comparisons. Our research addresses these problems by: 1) contrasting the predictions of the underlying causes of dyslexia, postulated by each of the theories, in one sample of participants with dyslexia (DPs); 2) demonstrating a possible relationship between the hypothesised deficits and reading deficit, through testing these relationships more directly - by contrasting the predictions of the theories on the neural correlates of reading deficit in DPs, using fMRI with participants performing a reading task; 3) using a multiple case study to investigate BOLD for each DP in comparison to the control group BOLD, thereby detecting deficits which otherwise could be obscured due to heterogeneity among DPs. Eighteen DPs with formal diagnosis of dyslexia and 16 controls matched on IQ, gender, age and education were tested. Participants were right handed, with native English, normal vision and without clinical ADHD. The neuroimaging task involved silent reading of single words and pseudowords (e.g, blint) and fixating on a cross (baseline) in an event-related design. The fMRI results, obtained using SPM software, are discussed in the context of the underlying causes of reading deficit in dyslexia postulated by the main theories.

Note: Please note that this paper is submitted for a poster presentation.

49: Rose, K. (The Gow School)

Phonics Instruction that Works for Older Students

Scientific research shows that weakness in mastering a language's phonetic code interferes in the development of reading skills (Torgesen, 2002). Phonics instruction is identified as a necessary ingredient of the 2000 United States National Reading Panel report, Teaching Children to Read. Based on the strength of converging evidence that phonological processing deficits among dyslexics preclude success in learning to read, informed instruction of dyslexic students should include direct instruction in multisensory, structured phonics. The proposed session shares The Gow School's successful model for instructing phonics to dyslexic middle and high school students. The workshop includes hands-on activities and teaching techniques.

51: Soulef, B. (Tsukuba University, Department of Kansei)

Phonological and visual cognitive abilities underlying reading and writing in Arabic primary school children

This study attempts to investigate which abilities contribute to the acquirement of reading and writing in children with normal developmental abilities in Arabic. To achieve this aim, several cognitive and achievement tests were conducted on 100 third grade Tunisian children attending Tunisian primary schools: RCPM test, cognitive abilities tests : phonological processing tests, visual processing test (ROCFT), vocabulary test (SCTAW), RAN test and achievement tests (fluency and accuracy in reading, writing and spelling). The results of these tests reveal the abilities of phonological awareness and visual memory are strongly related with reading and writing and can help predict reading and writing disabilities in Arabic.

55: Strand, P. Lindström, T.

Virtual Support Teams – a Development Project at Kristianstad University

Increasing need for virtual support, equalling pedagogical accessibility, has been the focus when forming the system of peer-to-peer virtual support teams. Questions posed by students in special needs – general or course related – are distributed to networks of mentor students, for immediate answering by capable student. The system, expected both efficient and durable, works 24/7. Automatic registration of questions and answers gives a picture of FAQ:s as well as the quality of answers – and provides means for course development. Above all, the virtual support teams seem to guarantee every student a high level of adequate pedagogical support – at any time. Kristianstad University Paul Strand, Coordinator for students in special needs Thomas Lindström, ICT-pedagog 29188 Kristianstad Sweden

59: Traficante, D. Marelli, C. Luzzatti, M. (Catholic University of Milan)

IS A BRICK (MATTONE) A BIG MAD (MATTO)? What can alternate forms in Italian tell us about morphological parsing in children with dyslexia and skilled readers

We studied the role of semantic and morpho-orthographic information in word naming, by using Italian alterate forms. Thirty-two children with dyslexia and 64 same-age skilled readers (mean age: 134 months) were requested to read alterate nouns (e.g. librone, big book), fully parsable pseudo-alterate nouns (e.g. mattone, brick) and simple nouns ending with a pseudo-suffix (e.g. carbone, coal). Alterate nouns are read faster than simple words,

while no difference emerged between the two types of simple words. Data are in favour of a dual-route access to morphologically complex words based on both whole word and morphemic constituents, linked to semantic representations.

61: Vallance, A. (Creative Mentors Foundation) Raising self-esteem by giving specialist help within arts programmes

Learning support tends to focus on academic subjects however, many dyslexic and dyspraxic children have enormous creative potential but, if they are not taught in a way that makes sense to them, they can lose interest and their potential is often wasted. The Creative Mentor Foundation <http://creativementors.org/> helps make the arts at State Secondary Schools more accessible and rewarding for dyslexic and dyspraxic children. This presentation in the form of video footage, photos, and commentary highlights the achievements of one mentor and his pupils from the Grey Coat comprehensive school.

63: van Ermingen, M. Pape-Neumann, J. (Aachen University) Heim, S. (Research Centre Jülich, Institute for Neurosciences and Medicine) Saß, K. Huber, W. (Aachen University) Amunts, K. (Research Centre Jülich, Institute for Neurosciences and Medicine) Grande, M. (Aachen University)
Developmental dyslexia: Neurofunctional reorganisation after training

The present fMRI study had the following objectives: (1) to identify brain regions involved in phonological processing and auditory-spatial attention in dyslexic children; (2) to identify changes in these brain activation patterns after training. Spoken word stimuli were presented monaurally either to the left or right ear to 40 German dyslexic children. Phonological task: children decided whether the word contained the phoneme /a/. Attention task: children indicated whether the word was presented to the left or right ear. Thus, task effects can be investigated independently from stimulus differences. The fMRI data are currently being analysed.

65: Vatanabe, T. (Faculdade de Ciências Médicas da Santa Casa de São Paulo, SP, Brazil) Mariano, S. Murphy, C. (Universidade de São Paulo, SP, Brazil) Navas, A. Durante, A. (Ciências Médicas da Santa Casa de São Paulo, SP, Brazil)

Performance of children with reading disorders after auditory training

There is still controversy about the influence of auditory training on reading skills. The present study evaluated the performance of reading and temporal resolution in children before and after auditory training. Twenty 8 year old children, 10 with reading and auditory processing disorders (SG) and 10 without reading or auditory processing disorders (CG) underwent initial assessment and reassessment of auditory temporal processing and reading abilities. The SG was submitted to 8 training sessions after which both groups were reevaluated. The CG scored higher in all tests when compared to the SG on initial evaluation ($p < 0.05$) and reevaluation ($p < 0.05$). The difference in performance before and after training was significant only for the study group ($p < 0.004$).

67: Wang, S. (University of York)

Executive functions deficits in children with reading difficulties: domain-general or domain-specific?

There is now some evidence suggesting selective executive functions deficits in children with reading difficulties. However, most of them focus on the verbal domain. It is still unclear whether executive functions deficits in children with reading difficulties are restricted to the verbal domain or extend to nonverbal domain. Our previous finding indicated children with reading difficulties showed domain-specific (verbal domain) deficits across a range of executive functions (working memory, inhibition, divided attention), maybe to some extent, more basic cognitive processing. This study aims to replicate this finding by adding more working memory tasks and using comparable inhibitory tasks across domains.

71: Wennås Brante, E. (Kristianstad University, Sweden) Where to look, when to do it and for what reason?

In education web-based information consisting of texts and pictures are frequent. Where and how do people with dyslexia gaze when they meet text integrated with pictures? Eye-tracking studies show that also task-irrelevant aspects of visual stimuli influence fixation durations. Text and picture integration can therefore be efficient or misleading, it matters which pictures are presented and how they and the text are made possible to discern. Results from a pilot study with people both with and without dyslexia where respondents read texts integrated with pictures while their eye-movements were recorded showed differences in gaze-patterns and fixations between the two groups.

73: Zelinkova, O. (Czech Dyslexia Association)

Students with Dyslexia at Charles University in Prague

Experience of 7 years individual support of students with dyslexia and dyscalculia at Charles University will be presented. The support is aimed on 3 topics: 1. Assessment of students. Assessment is carried out by a new standardised battery of tests. 2. Help to students to understand their difficulties to overcome dyslexia including their symptoms, find appropriate learning styles and coping strategies in everyday life. 3. Cooperation with university teachers.

76: Amy, J. (Murdoch University Western Australia)

Understanding Inclusion: Uncovering Teacher Perceptions of Teaching Students with Learning Difficulties

Students with specific learning difficulties need specialised services. However, how do teachers view this expectation to provide these services? How do they feel about these students and their needs? How does it affect their attitude towards teaching? What support is required? This study asks teachers how they perceive the inclusion of students with learning difficulties in their classrooms. Thematic analysis of teacher responses, from individual interviews and focus groups, illuminate perceptions of learning difficulties, describe encounters with students with learning difficulties, highlight common issues influencing practice as well as support the development of practical guidelines for teachers.

80: Brunswick, N. Chamberlain, R. Riley, H. Rankin, Q. McManus, C. (Middlesex University)

Dyslexia visuospatial ability in the three-dimensional world

Anecdotal evidence links dyslexia with superior visuospatial ability but empirical evidence is inconsistent: We have previously reported visuospatial superiority in dyslexia using 3D 'real world' measures (Brunswick et al, 2010) but not using 2D drawing tasks (McManus et al, 2010). In this study of dyslexic and non-dyslexic art students we found that dyslexia correlates with above average 'sensitivity to texture, feel and touch of materials', 'visual composition in 3D', 'mental rotation of objects', 'use of handtools to craft objects', and 'mechanical creativity'. Furthermore, dyslexic students are more likely to pursue careers as sculptors and theatre designers. Implications will be discussed.

Friday 3rd June 2011	Day 2	Morning
-----------------------------	--------------	----------------

10.15–11.45 am Main Auditorium

Symposium: Dyslexia and success in employment: Research to reality. Chair:
David McLoughlin

Dyslexia and success. **Paul Gerber (Victoria Commonwealth University, Virginia)**

This paper will report the findings of research into the factors that contribute to the success of adults with dyslexia, including 'extraordinary individuals'. Based on the findings a model that can be used to guide research and good practice will be described.

Dyslexia and Disclosure. **Lynda Price (Temple University)**

One of the factors contributing to the success of dyslexic individuals is the way in which they can disclose in a constructive manner. This paper will describe cross-cultural research in the area of disclosure. The complexities as well as the implications for practitioners and dyslexic individuals will be highlighted.

Promoting Self-understanding through Assessment. **David McLoughlin (Independent Dyslexia Consultants)**

Diagnostic assessment is too often an exercise in labelling. This paper will demonstrate how, based in research and a sound theoretical model, the assessment process can be enhanced so as to promote self-understanding, thereby enabling people with dyslexia to become more deliberate in seeking solutions to the challenges they face.

A metacognitive approach to self-advocacy skills. **Carol Leather (Independent Dyslexia Consultants)**

Effective self-advocacy is fundamental to the success of dyslexic individuals. This paper will describe how the findings of research and the results of assessments can be used to promote a meta-cognitive approach to the development of self-advocacy skills.

10.15–11.45 am Queens Suite 1

Symposium: Underlying neurocognitive deficits in developmental dyslexia
Chair: Angela Fawcett

Motor deficits in young adults with dyslexia. **Martin McPhillips, Helen McNally**
(**Queen's University, Belfast**)

This study focuses on a number of key areas of motor function in young adults with dyslexia. An experimental group of 15 university students with dyslexia and a control group of 16 university students without dyslexia completed a range of cognitive and motor tasks. The results indicated that there was a significant main effect of group on reading ($p < 0.001$), motor skills ($p = 0.001$), saccadic eye movements during smooth visual pursuit ($p = 0.016$), persistence of the asymmetrical tonic neck reflex (ATNR) ($p=0.02$), but not balance. The individual profiles of the young adults with dyslexia were also examined.

Developmental Dyslexia: A Temporal Sampling Framework. **Usha Goswami**
(**University of Cambridge**)

Phonological vs. visual deficits in developmental dyslexia: Insights from a population of French children. **Franck Ramus (CNRS, Ecole Normale Supérieure, Paris), Stéphanie Iannuzzi (CNRS, Inserm, Université de Toulouse), Sylviane Valdois (CNRS, Université Pierre Mendès), Genedys Consortium**

127 dyslexic and 84 control children aged 8 to 12 underwent a large battery comprising psychometric, literacy, phonological and visual tests. Visual tests focused on the visual attention span and visual stress. We found that visual stress affects very few dyslexic children if any. A visual attention span deficit affects a minority of dyslexic children, and largely co-occurs with a phonological deficit. A phonological deficit affects a large majority of the dyslexic children and explains most of the variance in literacy skills. Respective contributions of phonological awareness, rapid naming and verbal short-term memory to the phonological deficit are also discussed.

Learning abilities in dyslexia; implications for theory and practice. **Angela Fawcett**
(**University of Swansea**), **Rod Nicolson (University of Sheffield)**

The Specific Procedural Learning Deficit (SPLD) hypothesis (Nicolson and Fawcett, 2007), proposes that dyslexia results from impairments in the procedural learning system for language (and in some cases motor skills) whilst the declarative learning system is spared. In this talk we present a new study designed to examine components of non-verbal learning ability in dyslexic and matched control subjects. We have developed tests of procedural, declarative and statistical learning in visual and auditory modalities. The findings should be of theoretical and diagnostic significance and may inform design of interventions tailored to each individual's profile of learning abilities and disabilities.

10.15–11.45 am Queens Suite 2

Paper Session: Intervention Chair: Victor van Daal

Tutor-assisted computer-based instruction of children at risk for reading problems.
Haytske Zijlstra (University of Amsterdam)

This study investigates the effect of a computer-based instruction programme with assistance of a (non-professional) tutor on (pre-) reading acquisition of children at risk for reading problems. Results of children from kindergarten (N = 149) and first grade (N = 143) revealed that there were no significant differences in (pre-) reading growth between the control and intervention group. However, the results showed that the intervention was effective when children practiced regularly. Furthermore, school characteristics turned out to interact with differences in reading growth. Data about the effect of continued practice will also be presented.

A comparison of two versions of the reading achievement multi-modular program (RAMP-UP): Group and individual indicators at the adolescent level. **Beth Calhoon (Lehigh University)**

Relatively little is known about the particular instructional needs of adolescents with reading disabilities and their individual responsiveness to instructional approaches. In considering what might be effective for these learners, research has often focused on group-level indicators; possibly obfuscating gains occurring at the individual level. Therefore, this proposal will present group and individual level results from a recent study comparing two different versions of a remedial reading program, Reading Achievement Multi-Modular Program (RAMP-UP). This paper provides a rich exploration of what constitutes impact or skill development with the goal of capturing for which particular intervention impact is most meaningful and successful.

A study into the results of an intervention program of linguistic skills in English (L2) and its effect on Hebrew (L1) among poor readers: An examination of the cognitive – retroactive transfer (CRT) hypothesis. **Salim Abu-Rabia (University of Haifa)**

The present study examined whether an improvement in English as a second language causes an improvement among poor readers in Hebrew as the first language. This assumption is named in the present study "The Cognitive – Retroactive Transfer (CRT) hypothesis of linguistic skills". The participants were 20 sixth-grade poor readers from Israeli elementary schools, with Hebrew as their first language, and who learn English as their second language. All the students in the program participated in small group instruction sessions that emphasized linguistic and meta-linguistic skills in the second language (English). The program, which was administered over a 5 months period, involved approximately 40 hours of contact with a trained instructor. The participants were administered various tests which measured their basic linguistic skills in English as well as in Hebrew. The tests were as follows: phonological awareness, phonological processing, word identification, reading fluency, reading comprehension, morphological awareness, syntactic awareness, orthographic knowledge and spelling. The tests in both languages were given to the participants before and after the intervention program. The test results indicated significant differences both in English and in Hebrew before and after the intervention program for all linguistic skills (except orthographic knowledge).

Dyslexia and multilingualism: Reflections on a mixed methodology. **Tilly Mortimore, Mim Hutchings, Carrie Ansell, Anny Northcote, Lynda Hansen (Bath Spa University), John Everatt (Canterbury University, New Zealand)**

This mixed-methodology intervention project is funded by the Big Lottery and undertaken in partnership with the BDA. It focuses on the group of bilingual learners who also experience dyslexic difficulties. This paper reflects on the mixed methodology approach taken in the study to explore the experiences of the children, parents and the participating professionals in ways that combine statistical analysis of the impact of the intervention programme with

narratives describing experience and development through focus groups and questionnaires both pre and post intervention. It concentrates on what can be learnt from the listening to the children, parents and professionals involved in the project for future research.

Stimulating concept imagery, A dual-coding approach for comprehension. **Nanci Bell, Lynn Flowers, Allison Katos (Lindamood-Bell Learning Processes)**

Dual Coding Theory (DCT) proposes that cognition is the result of the integration between verbal (language) and non-verbal (imagery) codes. One successful approach in comprehension remediation uses instruction that targets the ability to develop imagery that matches text, and to stimulate verbalization that matches imagery. Concept imagery is necessary for individuals to create gestalt representations, needed for higher-order thinking. This presentation will analyze case studies of individuals who have received concept imagery stimulation, including hyperlexic, dyslexic, and individuals on the Autism spectrum. The instruction took place in private centers and schools.

10.15–11.45 am Queens Suite 3

Paper Session: Reading development Chair: Laura Shapiro

A diffusion model explanation of word recognition in dyslexic children. **Maaike Zeguers, Patrick Snellings, Wouter Weeda (University of Amsterdam), Jurgen Tijms (Iwal Institute), Peter Tamboer, Anika Bexkens, Hilde Huizinga (University of Amsterdam).**

Impaired visual word recognition is widely considered as a core characteristic of developmental dyslexia. However, controversy regarding its nature remains. Thus far most theories are verbal in nature, despite the benefits of computational modelling¹ We applied the diffusion model² to compare dyslexic children's lexical decision performance on a speeded visual task and a speech-in-noise task with CA-controls and RA-controls. Results indicate dyslexics to be delayed in language-specific processes compared to CA-controls, both in visual and auditory word recognition. In addition, dyslexics show heightened insecurity on visual word recognition. Implications for theories on dyslexic's word recognition processes will be discussed. Literature 1 Ziegler, Grainger & Brysbaert, 2010 2 Ratcliff, Gomez & Mc Koon, 2004

Dyslexics' acquisition of the derived noun morphology in the Greek language. An eighteen months follow up study. **Annastasia Grammenou (Democritus (University of Thrace)**

Derivational morphology gives a good account on how words are formulated to express new meaning using a familiar base morpheme and the appropriate suffixes. In the Greek language Triantafyllidis (1932) described 28 noun classes (types) as derived forms of verbs and other nouns. These noun suffixes are differentiated on relative and absolute frequency of use. General orthographic rules describe the representations of the /e/ and /o/ allomorphs in all noun classes. Specific phonological and orthographic rules predict the way vowels in the penultimate syllable are represented and the consonant change at morpheme boundaries. The present study explores dyslexic children's ability to identify orthographic violations in the ultimate and the penultimate syllable of derive nouns and pseudo –nouns when they were attending grade 6, as well as their progress 18 months later. In order to evaluate dyslexics' orthographic ability to represent the derive suffixes three tasks were

used. The first task involved identification of derived nouns with violation or no violation in the penultimate or ultimate syllable in a paper and pencil task. Subjects were to decide whether the word in the second column were a correct derived form of the word presented in the first column. The articles preceding nouns in the second column guided subjects to decide on the general orthographic rule (e.g. gender and the number appropriate), whereas words in the first column (verbs or nouns) guided students on the orthography of the penultimate syllable. In the same token, the second task involved identification of the derived pseudo-nouns resulting again from the pseudowords given in the first column. Articles of the second column as well as pseudo-nouns and pseudo-verbs guided the subjects. The third condition examined use of derived nouns in a sentence completion close test. Subjects used the nouns and the verbs given in blankets to formulate the appropriate derived nouns. Suffixes errors were coded as orthographic processing, phonological processing, combined type and stress omission/misplacement. Eighteen months later the follow up test revealed a significant improvement on the orthography of the derived nouns with consonant change at morpheme boundaries, as well as, on the orthographic rules of the ultimate syllable of the pseudoword tasks. Dyslexic children were also improved on their ability to produce phonologically orthographically correct responses on the sentence completion task.

Predicting individual differences in the acquisition of decoding and sight word reading. **Laura Shapiro (Aston University), Julia Carroll (University of Warwick), Jonathan Solity (KRM, Psychological and Educational Research Consultants)**

Print knowledge, phonological awareness (PA), speech, memory, auditory, visual and motor skills were examined in 444 children beginning school in the UK. Decoding and sight word reading accuracy and fluency were measured at the end of the first three school years. PA, speech, memory and auditory skills maintained a strong relationship with decoding. In contrast, Print Knowledge provided the only direct link to sight reading, once correlations with other skills were modelled. Thus, PA is critical for children to develop a decoding strategy, but not for recognition of words by sight.

Identifying factors that influence deaf children's ability to read for meaning: A whole service perspective. **Paula Clarke, Ruth Swanwick (University of Leeds).**

We present the first phase of a research programme which aims to identify the intrinsic, direct and indirect factors that influence deaf children's ability to read for meaning. Four groups of practitioners (resource based teachers, peripatetic teachers, communication support workers and deaf instructors) from nursery, primary and secondary contexts participated in focus groups and semi structured interviews. Participants reflected on the activities which they do to support deaf children's reading comprehension and the factors that influence how successful these activities are. The responses will be compared across groups and contexts and discussed in relation to theoretical models of reading comprehension.

10.15–11.45 am Queens Suite 4

Paper Session: Technology Chair: Ian Smythe

Development and evaluation of the PATS (Polish Assistive Technology Suite). **Magdalena Ziemnicka (Jagiellonian University), Ian Smythe (University of Wales, Newport)**

There are many e-resources to help the dyslexic student in the English language, both in the form of assistive technology and support such as study skills. However, in Poland, this is not the case. Working with colleagues across Europe, Jagiellonian University has developed a solution using free and low cost resources to empower and support dyslexic students. The presentation will provide the theoretical framework for the construction which may be replicated in other language contexts. The suite including reading and writing support, technology for adapting the user interface, as well as online student based e-learning. Details of trials, student responses and evidence-based modifications made, will be given.

The DfE Accessible resources pilot project - independent use of technology and accessible e-texts. **E.A. Draffan (University of Southampton)**

This project was conceived to assess whether the provision of textbooks and teaching materials as electronic files, along with technologies to convert and 'read' them, to visually and print impaired pupils and staff in schools and local authorities that support them ('Specialist Producers') could provide a new and sustainable model. Pupils, with support from staff and trainers, quickly chose the technology and settings that worked best for them and had no problems in accessing a variety of documents including textbooks and school worksheets. Dyslexic pupils benefited most from using text to speech software, both for reading and writing. The software was able to read MS Word documents and accessible web pages directly. 74% changed the settings on their computers, most changing the font size, the colour background or using highlighting of text as it is read out loud. On a scale of 1 to 6 (low to high), 90% of all pupils interviewed rated the value of using a computer for their schoolwork as a 4-6, 48% rated it as 6. 40% of pupils commented that they felt they had improved in their schoolwork. The project confirms that making teaching materials available to print and visually impaired pupils in an appropriate electronic form along with access technologies to read them can make a difference to their reading, writing, confidence, development and inclusion. The same electronic materials can also provide productivity savings for staff in schools and local authorities.

Independent with ICT, or reliant on readers? Can technology replace readers in examinations? **Paul Nisbet (University of Edinburgh)**

This paper discusses whether Assistive Technology, in the form of interactive digital question papers and text-to-speech software, can replace reader/scribes in examinations. Every year thousands of pupils in Scotland require "Assessment Arrangements" to sit Scottish Qualifications Authority (SQA) examinations. The most common type of support required (after extra time) is the use of a reader or scribe and in 2010 SQA received 16,863 requests to use a reader and 14,313 requests for a scribe. Analysis of the uptake of digital papers by schools in Scotland to date suggests that ICT offers a cheaper, more independent method of support than reader/scribes.

Productivity and text-to-speech software metrics. **Ian Smythe (Ibis)**

Text-to-speech software has evolved from a basic tool that reads what appears on the screen to become sophisticated software that appears to solve many of the issues around accessing the written word. However, there has been little research that attempts to identify what is of value and how it may best be used. The purpose of this paper is to present metrics and research data based on a theoretical model for the voice and the interface, contextualised to the dyslexic user, in order to assist the decision-making process and help optimise productivity.

10.15–11.45 am Queens Suite 5

Workshop: More to Literacy than Phonics.
Judy Capener (Manchester Metropolitan University)

Friday 3rd June	Day 2	Afternoon
------------------------	--------------	------------------

1.45 –3.15 pm Main Auditorium

Paper Session: Cross-linguistic issues Chair Franck Ramus

Word-level and text-level reading in Maltese: underlying phonological and linguistic predictors. **John Everatt (University of Canterbury), Louisa Grech (University of Surrey), Christine Firman (SpLD Service Educational Division, Malta)**

This talk presents work investigating predictors of isolated word reading and reading words in continuous text in Maltese. Measures of phoneme identification were predictive of Maltese word-level literacy; results consistent with the supposed influence of phonological processing on word-level reading with a reasonably regular orthography. In contrast, the results for text reading indicated that language-level processes were good predictors of variability in reading comprehension in typical Maltese children. Children with literacy difficulties (dyslexia), however, showed evidence that they were still focused on processing of word level features, data which were consistent with phonological weaknesses leading to poor literacy development.

Dyslexia in English as a foreign language (EFL) among high-performers. **Signe-Anita Lindgrén (Abo Akademi University Finland)**

This paper reports on a study addressing performance features on language tasks and neuropsychological tasks of multilingual dyslexic university students. In my paper, I will present group performance patterns of 20 dyslexic university students contrasted with that of a group of 20 age matched and education matched controls in L1 (Swedish/Finnish), L2 (Swedish/Finnish) and EFL reading and writing tasks. The presentation focuses on the EFL findings. The research is based on the phonological deficit hypothesis of dyslexia (e.g. Høien & Lundberg 2000; Snowling 2000).

Dyslexic Welsh speakers in higher education studying through the medium of English. **Margaret Meehan (Swansea University), Kate Dresser (Cardiff University), Margaret Wade (Cardiff University), Angela Fawcett (Swansea University)**

First language Welsh dyslexic students in HE report that composition in English involves translating from Welsh into English which is slow and results in additional syntactical errors. This study gives the results of initial interviews with first language Welsh dyslexic students on their approach to reading and writing in English and the provision of appropriate skills to make their study more efficient. The reading rates of Welsh speaking dyslexic students in Welsh and English will be compared to their non-dyslexic peers.

Dyslexia in non-English speaking countries: how can you begin to help? **Vivien Ward, Margaret Meehan, Angela Fawcett (Swansea University)**

Where there is a lack of dyslexia awareness, it presents a barrier to setting up the necessary support. In certain EU states, provision for dyslexic students in HE is absent or needs improvement. iSHEDS - Identification and Support in Higher Education for Dyslexic Students, aims to ensure that no dyslexic student in Europe is excluded from making

appropriate advances through university due to a lack of policies and resources. We report on sharing best practice and how a method of sustainable inclusion using e-resources, has been seeded across 7 European countries.

Dyslexia and multilingualism: Identification and intervention. Tilly Mortimore, Anny Northcote, Mim Hutchings, Lynda Hansen, Carrie Ansell (Bath Spa University), John Everatt (University of Canterbury, New Zealand)

This mixed-methodology intervention project is funded by the Big Lottery and undertaken in partnership with the BDA. It focuses on the group of bilingual learners who also experience dyslexic difficulties. This paper will present an ongoing project which is trialing and evaluating ways of identifying (screening) and supporting bilingual children who might be at risk of SpLD/Dyslexia. The emerging effective practice for bilingual and dyslexic learners will inform the development of CPD training for teachers, teaching assistants and inclusion leaders in these areas and aims to promote multilingualism and dyslexia awareness across schools.

1.45 –3.15 pm Queens Suite 1

Symposium: Early biological markers predicting dyslexia: evidence from EEG studies Chair. Aryan van der Leij

Infant EEG separates three groups: fluent reading children at-risk of dyslexia, non-fluent at risk children and controls. **Titia van Zuijen (University of Amsterdam), Ben Maassen (University of Groningen), Aryan van der Leij (University of Amsterdam)**

Children at risk of dyslexia and control children were measured with EEG at the age of two months to investigate their ability to discriminate the speech contrast /BAK/ and /DAK/. The children performed a word-reading fluency test in second grade. The fluent reading at-risk children and the control group could discriminate the speech contrast as indicated by a mismatch response (MMR). In the control group the MMR was frontal and in the fluent reading at-risk group the MMR was more parietal. The low fluency at-risk children did not show an MMR. We conclude that at-risk children who become poor readers were worse at speech discrimination in infancy than those who become normal readers. The results also suggest different neural speech processing circuitry in children with a genetic risk of dyslexia.

The value of amplitude rise time sensitivity at a pre-reading age for predicting dyslexia. an MMR-study: **Anna Plakas, Theo van Leeuwen, Titia van Zuijen, Aryan van der Leij (University of Amsterdam)**

According to the P-center hypothesis of Goswami impaired sensitivity to amplitude rise times (ART's) is the primary deficit in dyslexia. An auditory oddball paradigm, with a deviant that differed in amplitude rise times (ART) from a standard, was administered to 41-month-old children (30 genetically at risk for dyslexia and 15 controls) with concurrent EEG measurement. A second deviant that differed from the standard in frequency served as a control deviant. Word-reading fluency in grade 2 was used to divide the at-risks in a typically and a poor reading group. Controls showed a significant mismatch response to both deviants, but this effect was absent in both the at-risk groups. Impaired ART-processing seems to be related to genetic risk for dyslexia, but does not predict dyslexia.

Brain responses at birth to non-speech sounds and at six months to speech sounds are associated to pre-reading and reading skills in children with familial risk for dyslexia. **Paavo Leppänen, Jarmo Hämäläinen, Tomi Guttorm, Kenneth Eklund (University of Jyväskylä)**

The role of auditory and speech perception as risk factors for dyslexia was studied investigating brain event-related potentials (ERPs) at birth and at six months and examining their association with later pre-reading cognitive skills and literacy outcome. Brain responses to tones varying in pitch (at birth: 1000 Hz vs. 1100, 22 at-risk and 29 control infants) and in consonant duration (at 6 months: /ata/ vs. /atta/, 26 at-risk and 27 control infants) were measured using MMN-paradigms. Infant ERPs were associated with phonology and letter knowledge prior to school age, and with phoneme duration perception, reading, and spelling at the 2nd grade. At-risk children with dyslexia also differed in their infant ERPs from typical control group readers. Furthermore, ERPs to consonant duration change of the at-risk group with dyslexia at 2nd grade differed from those of typical readers. However, not all children with dyslexia had an atypical infant ERP-pattern. Thus, a sub-group of dyslexic readers with familial risk seem to have developmentally atypical auditory/speech processing pattern, which is also related to later weaker literacy and reading related skills. Therefore, atypical auditory processing is not likely a sufficient reason by itself for dyslexia but rather one endophenotype /risk factor.

Early biological markers predicting dyslexia: state-of-the-art. **Aryan van der Leij (University of Amsterdam)**

The evidence about early biological markers will be reviewed. In addition to the conclusions of the presented papers that biomarkers are associated with genetic risk, the question is explored whether they may be considered as a cause. In addition, what evidence do we have for compensating mechanisms that may be decisive for the manifestation as a deficit. Findings from other studies investigating the predictive value of automated perception measurements at a later (still preschool) stage will be included in the review, as well as the issue of subtypes/individual trajectories and the contribution to early diagnosis.

1.45 –3.15 pm Queens Suite 2

Paper Session: Assessment Chair: Kate Saunders

The Assessing Dyslexia Toolkit. **Margaret Crombie (Dyslexia Scotland)**

In 2008 an expert working group was set up with funding from the Scottish Government to investigate and make recommendations on a consistent approach to the identification of dyslexia in Scottish schools. In June 2010, an online toolkit for assessing dyslexia was launched by the Education Cabinet Secretary (Scotland) and Sir Jackie Stewart. The toolkit guides teachers through the stages leading to the assessment of dyslexia. This paper highlights the content of the resource, considers the processes gone through to develop it and gives some preliminary findings on the response from teachers working with the toolkit in the classroom situation.

The management of developmental disorders using online triage. **Amanda Kirby (University of Wales, Newport), Ian Smythe (Ibis)**

The move to secondary school is a large step for most children especially those with developmental disorders either if they have been diagnosed or not. Recognising which

children need additional support and providing guidance can optimise functioning. In a time of budgets being slashed, there is an increasing need to identify alternative models of service delivery. This paper will present the results from trials with 1200 children across Dublin using a computer profiling for the identification of needs of those with developmental disorders, as well as delivery of teaching support, in collaboration with Psychological Services in.

Spelling abilities in the Portuguese language: Analyzing the production of dyslexic children. **Lénia Carvalhais (Universidade de Aveiro)**

Opaque orthographies like the Portuguese language are inconsistent and the phoneme-grapheme correspondence rules are insufficient to spell many words. According to these findings, the aim of this study is to observe the most frequent errors made on a dictated spelling test (20 words), the most frequent linguistic categories (Materson & Apel, 2000) and if there are any differences in the patterns of errors and in the mean of correct words spelled by 20 Portuguese normal spellers and 20 dyslexic pupils with poor spelling abilities, in the 3rd school grade. The results show that there are differences between the two groups.

Poor Readers in a Swedish Longitudinal Study. **Christer Jacobsen (Linneus University)**

1.45 –3.15 pm Queens Suite 3

Workshop: Dyslexia: Let's be Positive.

Ann Cooke (Bangor University)

Sponsored by International Institute of Colorimetry

Too much emphasis is put on the 'DYS' of DYSLEXIA: the negatives, problems, and barriers to learning. It has even become institutionalised, as recognised disability is a route to funded help and exam access arrangements. The focus will be on how this perception can be turned around, not just for those in education, but among the general public and the world of work. I start with a word-game and invite the audience to join in. Taking DYSLEXIA letter by letter, I find POSITIVE words beginning with each in turn, starting with Different Learner. The immediate aim is to build self-confidence and self-esteem.

1.45 –3.15 pm Queens Suite 4

Workshop: The sky is the limit. Learning strategies to unlock to potential of learners with dyslexia.

Andrew Stetkevich (Riverside Unified School District, California)

Students with learning disabilities, including dyslexia, can achieve academically in the classroom with specific multisensory strategies (Thorpe and Border 1985; McIntyre and Pickering, 1995). Participants will experience multisensory strategies related to both primary and secondary academic subject matter. Duman (2006) showed the effectiveness of using multisensory strategies in the learning of Social Studies content with students in a primary school setting. Sample multisensory strategies to develop content-embedded decoding, fluency, vocabulary, and comprehension skills will be shared. Practitioners will participate in the learning of academic content through the use of physical response, nonlinguistic, and auditory-visual-kinesthetic strategies.

1.45 –3.15 pm Queens Suite 5

Workshop: Exploring Dyslexia in the Workplace.

Katherine Kindersley, June Massey, Sandra Hargreaves (Dyslexia Assessment & Consultancy)

The workshop builds on the talk on the 'basics' of workplace dyslexia consultancy that I delivered at the last Conference. It would 'push the boundaries further', illustrating - through role play and audience discussion - the problems that might face a workplace assessor 'in real life'. The scenario would be a case where employer and dyslexic employee view the situation completely differently, and relations between them have broken down. The role play of key situations would allow discussion of reasonable adjustments and related legal issues; and the audience would act as 'jury' in exploring what support should be recommended.

4.00 – 5.30 pm Main Auditorium

Paper Session: Receptive Language Chair: Caroline Witton

Sensitivity to Novel Linguistic Stress among Children with and without Dyslexia:
Alida Anderson (American University, Washington DC), Candise Lin, Min Wang (University of Maryland)

This study identifies skill variation between children with and without dyslexia in differentiating novel language (Chinese) and native language (English) stress, and non-linguistic sounds. This evidence provides understanding of native language preference in relation to reading skill. Participants include grade 2-3 monolingual English-speakers with dyslexia (N=30) and without (N=30). Stress sensitivity is examined using a forced-choice task in which children judge pairs of novel-, native-, and non-linguistic sounds, deciding which sounds more like a language in different combinations. Specific comparisons address the extent to which there is skill variation between groups in differentiating between the linguistic stress and non-linguistic sounds.

Reading prosody in children with dyslexia. **Jurgen Tijms (University of Amsterdam)**

Reading fluency is typically defined as accurate reading of connected text at a conversational rate with appropriate prosody. Fluent reading in general, and prosody in particular, is considered essential for reading comprehension. Surprisingly little is known on reading prosody of dyslexic children. Using regression and path analyses, this study presents (a) the associations between letter-speech sound mappings, reading accuracy, reading rate, reading prosody, and reading comprehension in children with dyslexia (N = 30), and (b) a window on the dynamics of change of these reading components during a treatment for dyslexia focused on letter-speech sound association training in (sub)word context.

Language and literacy development of late talking Polish toddlers: a longitudinal study: **Marcin Szczerbinski, Magdalena Smoczynska (University of Sheffield)**

We report a longitudinal study that followed the development of Polish children who, around their 2nd birthday, were identified as having very limited expressive vocabulary, and of a

matched control group of children whose expressive vocabulary at that age was average. Their speech, language and communication development were studied extensively between the ages of 2 and 8;6, decoding, reading comprehension and spelling skills were assessed at the ages of 8 and 8;6. The study produced rich data that allow us to explore the relationship between the late onset of speech, specific language impairment (SLI), and literacy difficulties.

Oral language skills of normal and poor readers: **Eleni Morfidi (University of Ioannina)**

The present study investigates the contribution of oral language in the development of literacy among children who encounter reading difficulties. The sample consisted of 40 poor readers from grades three to six and 40 normal readers. The two groups were matched on age, gender and general ability. The measures included: word reading, reading comprehension, phonological awareness, morphological knowledge, and oral language skills. The focus is on children's oral narrative production. The results indicated greater connection between oral language and reading among normal readers than poor readers. Poor readers have not yet developed the quality of oral language that normal readers have in order to support literacy development.

4.00– 5.30 pm Queens Suite 1

Workshop: Partnership for Literacy: the secondary school phase. I. The Partnership for Literacy (P4L) models of intervention II. The Spelling and Writing Course

Margaret Rooms (Dyslexia Action)

These workshops show how Dyslexia Action's materials are used to develop expertise in literacy intervention in mainstream secondary schools. The projects build on the earlier success of the P4L primary projects but have been adapted to suit the older students in Key stages 3 and 4. The first workshop, 'The Partnership for Literacy (P4L) models of intervention' will give: An overview of the P4L-S projects; Identification of lessons learnt and issues for discussion; A practical demonstration of the main features of Units of Sound, the IT based literacy programme used in P4L, with audience participation; P4L Intervention Packages- an introduction.

The second workshop: 'The Spelling and Writing Course' will give: An overview of how this course is used within the P4L-S projects; An introduction to the Spelling and Writing course; A practical workshop working through one of the 10 sessions of the course.

4.00 – 5.30 pm Queens Suite 2

Symposium: Cross-Linguistic studies into developmental dyslexia :Possible causes. Chairs: Taeko Wydell and Marie Lallier

The Contribution of Visual Attention Span and Phonological Processing to Dyslexia in English. **Taeko Wydell, Liory Fern-Pollak (Brunel University)**

The study aimed to examine the differences in the degree of contribution of visual attention span and phonological processing to dyslexia in English. In Experiment 1, twenty-four dyslexic adults and 24 control participants performed a series of VAS, phonological and

control tasks. These enabled us to identify dyslexic individuals with VAS deficit and distinguish them from those with phonological deficit. Based on these data, Experiment 2 examined the neural correlates of VAS and phonological processing using fMRI, in twelve of the dyslexics and 14 of the controls from Experiment 1. These data replicate and extend previous findings obtained in French.

Cross-linguistic interactions in visual attention processes underlying reading: Evidence from simultaneous bilingualism: **Marie Lallier (Basque Center on Cognition, Brain and Language, San Sebastian, Spain), Sonia Kandel (Universite Pierre-Mendes), Sylviane Valdois (Centre National pour le Recherche Scientifique), Manuel Carreiras (Basque Center on Cognition, Brain and Language, San Sebastian)**

In this talk I will present behavioural and electrophysiological data from bilingual skilled and dyslexic readers showing that phonological and visual attention span skills vary according to the degree of orthographic transparency of the languages learnt. Data collected in simultaneous bilinguals having learnt to read in one opaque and one transparent languages will clarify whether 1) orthographic transparency of the language assessed constrains reading strategies and the visual attention span and 2) learning to read in a transparent/opaque orthography in parallel to an opaque/transparent language helps compensating for phonological/visual attention span deficits and decoding/lexical reading difficulties of dyslexic individuals.

Contribution of phonological and visuo-spatial processing abilities to the acquisition of Kana reading skills by Japanese normal and developmental dyslexic children. **Akira Uno (University of Tsukuba), Noriko Haruhara (Mejiro Univesity) Masato Kaneko (Teikyo Heisei University), Noriko Awaya (Tokyo Saiseikai Central Hospital)**

The cross-sectional-study with children (aged seven – twelve) employing visual/phonological memory and other cognitive tasks including auditory abstract-word comprehension task revealed that the speed of RAN (Rapid Automatized Naming), word-repetition in reverse-order, and visual immediate and delayed memory tasks predicted their Kana reading abilities. The longitudinal-study revealed that the scores for visual delayed memory and word-repetition in reverse-order tasks of pre-school children (aged six) predicted the level of Kana reading skills when the children had become First-Graders (aged seven) at primary schools. These studies indicated that both phonological and visual processing skills are required for the acquisition of Kana reading skills.

The underlying cognitive deficits of Kana reading impairment: Insight from simulation and empirical studies. **Ami Sambai, Akira Uno (University of Tsukuba), Noriko Haruhara (Mejiro Univesity) Masato Kaneko (Teikyo Heisei University), Noriko Awaya (Tokyo Saiseikai Central Hospital), Junko Kozuka (LD/Dyslexia Centre, Chiba-Pref., Japan), Takashi Goto (Mejiro University)**

A computer-simulation model was developed to investigate the cognitive mechanisms that give rise to a Kana-reading impairment. Once the model was constructed, specific lesions, affecting the phonological or visual processing element were introduced to mimic sub-types of developmental dyslexia. The data from the dyslexic children and the output from the model revealed that (1) a mild single phonological or visual processing deficit does not influence the accuracy of single Kana-reading; (2) a severe single phonological deficit can cause a Kana-reading impairment, and (3) a double (phonological and visual processing) deficit can result in Kana-reading impairment although each deficit is mild.

4.00 – 5.30 pm Queens Suite 3

Workshop: Effective groupwork with dyslexic students in higher education: Examples of practice in two Welsh universities.

Kate Dresser (Cardiff University)

The workshop will discuss two different ways of organising group support for university students with dyslexia and other SpLD. Both Bangor and Cardiff have long established support and information services for students with SpLD. In semester time the Dyslexia Support Service in Bangor delivers a programme study skills and discussion through weekly evening meetings. Topics include memory and revision, academic writing and reading skills, giving presentations, dissertations, CVs and much more. Meetings are mostly steered by students themselves with the tutor taking a back seat. Across the academic year Cardiff organise a series of between four and six workshops covering similar topics as Bangor; flexibility and student input is encouraged and workshops are open to any student. In both universities groupwork is complimentary to 1/1 specialist support, not offered as a substitute. Practice will be presented within the context of relevant theories of group and adult learning; social model of disability; and inclusiveness in the learning environment.

4.00 – 5.30 pm Queens Suite 4

Workshop: Compelling web design for dyslexic visitors.

Matthew Bickerton (International Dyslexia Association)

The authors are dyslexic and have extensive experience in the web-design industry. The current practice for dyslexic-friendly websites produces unappealing sites that lack aspiration, emotion and involvement. Adding complexity to websites (e.g. with screen readers, font size/colour changers etc.) is no substitute for good fundamental layout and design. This workshop brings together: the fundamentals of graphic design; recent web technology and an understanding of dyslexic visitors' needs.

4.00 – 5.30 pm Queens Suite 5

Workshop: What's in a name? HE Study skills, specialist 1:1 support, coaching?

Ros Lehany, Sally Freeman (ADSHE, UK)

In 2009 The Association of Dyslexia Specialists in HE (ADSHE) published Guidelines for Quality Assurance in Specialist Support for Students with SpLDs in HE. These Guidelines focus on the principles that underpin the support and the content and complexity of that support. There is ongoing debate about the use of the term 'study skills' in government guidance and DSA documents and there is an increasing call for the terms 'specialist 1:1 support' and from some quarters 'coaching' to be used instead. This workshop will demonstrate how this important support is delivered and will offer some guidance on an appropriate descriptor.

Friday 3rd June 2011	Day 2	Evening
-----------------------------	--------------	----------------

Poster session : 6.30pm – 7.30pm Level 5 and Queen’s Suite Upper Level

2: Agahi, S. The strengths of dyslexia in the workplace

4: Bekebrede, J. (Free University of Amsterdam) Gouwetor, C. van der Leij, A. (University of Amsterdam)

Social-emotional and physical functioning of dyslexic and normal reading adolescents

This study investigates whether students with dyslexia tend to have more social-emotional and physical problems than normal reading students. The sample consisted of 42 dyslexics and 63 normal reading students from initial vocational education (mean age 15;3 years). The students completed a screening battery for dyslexia and questionnaires regarding self-concept, motivation, sleeping problems, and physical complaints. Strikingly, half of all students, regardless of reading status, reported having sleeping problems. Furthermore, the results indicate lower levels of self-concept among dyslexics. However, there were no indications for differences between the groups in terms of motivation, sleeping problems, and physical complaints.

6: Benassi, M. Magnani, B. Giovagnoli, S. (University of Bologna) Angelini, D. Ghidoni, E. (UO Neurologia, Arcispedale S.Maria Nuova, Reggio Emilia) Frassinetti, F. (University of Bologna)

Visual perception and time perception in Developmental Dyslexia

Developmental dyslexia has been associated to an impairment of the magnocellular-dorsal pathway. This pathway is critically related to the discrimination of events in time and space. We hypothesize that the dyslexics’ magnocellular deficit is connected to abnormal time perception. Twenty dyslexics and twenty-one controls have been analyzed. Motion perception, hyperacuity and form perception have been measured and correlated with time perception. The results show that dyslexics’ deficit within both the early stages of the magnocellular system and the dorsal pathway is associated to anomalous time perception. Our findings provide evidence for a general abnormal performance of the “When” pathway in dyslexia.

8: Boo, S. (London Metropolitan University)

The keyword mnemonic: an effective memory technique for dyslexic learners

The efficacy of keyword mnemonics for improving memory for words is well-established in the literature. However, its use with dyslexic adults remains unexplored. I conducted research with dyslexic adults to test the effect of keyword mnemonics on their learning of advanced vocabulary. Results showed this technique had a significant impact on their ability to recall word-meanings. My presentation will summarise past research on keyword mnemonics, describe my methodology and results, and outline the benefits of wider teaching of this strategy to dyslexic learners. It will also provide basic instruction in the use of keyword mnemonics

10: Brunswick, N. (Middlesex University) McManus, C. Chamberlain, R. (University College London) Riley, H. (Swansea Metropolitan University) Rankin, Q. (Royal College of Art)

'Immediately, sincerely, chocolate': Findings from a new self-administered spelling test for dyslexia

Spelling ability has been identified as the best single predictor of dyslexia but traditional spelling tests require an assessor to be present to read the words – causing additional stress to those being tested – and they require individuals to recall and then produce the correct spellings. To overcome these problems we devised an alternative, self-administered test in which the correct spelling and three plausible distracters are presented for 20 commonly misspelled words (e.g. correspondance, correspondence, correspondance, correspondance). This test has good internal consistency ($\alpha = .837$) and it distinguishes reliably between dyslexic adults, maybe dyslexic (but un-assessed) adults, and non-dyslexic adults.

12: Caplan, M. Bark, C. McLean, B. (Helen Arkell Dyslexia Centre)

Children's Spelling: Trends and Targets

A new edition of the Helen Arkell Spelling Test (HAST-2) was administered to a large cross section of children in the UK. Detailed analyses of error patterns at different ages were charted. Subgroup analyses were conducted. Implications for teaching targets and strategies are discussed.

14: Cassim, M.R. Moores, E. Talcott, J.B. (Aston University)

Adults with dyslexia are prone to crowding but can utilise cues.

We present results from two studies investigating attention modulation in dyslexia using a tilted target detection task amongst vertically orientated distractors. The first experiment showed that adults with dyslexia: (i) had decreased performance when distractors were placed closer together and (ii) successfully utilised the target pre-cues (vs. post-cues and no cues) to enhance the target signal, no matter how crowded together the stimuli were. The second experiment aims to further investigate this crowding effect by using two other set sizes. Results will be discussed.

16: Cheng, P. Chiu, L. Chan, C. Luk, S. Lai, W. (University of Hong Kong)

Supplemental Instruction for Struggling Readers in Primary Schools: Current Practices in Hong Kong

In recent years, the Hong Kong Education Bureau introduced a 3-tier intervention model for supporting students with special learning needs. A survey was conducted to investigate the current practices of supplemental reading instruction in Hong Kong primary schools. A 24-item questionnaire was sent to 300 schools and 179 questionnaires were returned. Results indicated that more than 80% of the schools offered supplemental instruction to struggling readers. However, student selection criteria, number of groups, group size, mode of implementation, and program intensity and duration varied drastically among schools. Implications for developing a systematic implementation plan of the 3-tier model are discussed.

18: Eld, M. On the Edge

This research aims for better understanding of the HE dyslexic population in order to improve support and outcomes. The students' history of dyslexia recognition and support was reviewed in light of their interaction with HE support. The findings will interest those working in compulsory education, HE support and Dyslexia assessment, namely: recognition in primary school has implications for countering the lower average degree class achieved; female students are more likely to be recognised as dyslexic for the first time in HE; a full set of IQ indices has a place in individual support planning.

22: Fella, A. (University of Cyprus) Georgiou, G. (University of Alberta) Papadopoulos, T. (University of Cyprus) Rauno, P. (University of Alberta) Amplitude rise time discrimination and developmental dyslexia in a consistent orthography

The purpose of this study was to examine amplitude rise time discrimination (ARTD) deficits in a consistent orthography (Greek). Grade 2, 4, and 6 dyslexics and chronological age controls were tested on an ARTD task and reading. The results indicated that there were no significant group differences on ARTD at any measurement point. However, an analysis of individual performance revealed that 50% of the grade 2, 39% of the grade 4, and 35% of the grade 6 dyslexics performed more than 1SD away from their chronological age controls suggesting that some dyslexics may compensate for ARTD deficits later on.

24: Gilsenan, M. (Lee Opticians) Pierscionek, B. (University of Ulster) Contrast optimisation as a means of assessing and treating dyslexia

The use of coloured filters for improving reading and writing in those who suffer from a form of dyslexia, that responds to a reduction in contrast, is well known. The most common means of testing has been using intuitive selection of coloured filters. The limitations of this method are that the filter ranges cover only a very small portion of colour space and that selection is not based on a quantified measure. A new means of accurately assessing filter colour to optimises reading, writing and coordination performance of school children will be presented with results from over 200 children shown.

26: Hanna, S. (The Dyslexia SpLD Trust) Professional Development Framework – Benchmarking skills and Knowledge for effective CPD in dyslexia – SpLD

This poster describes the web based tool created for all teachers and related professionals, to benchmark their knowledge and skills in relation to what is required for them to fulfil roles at each stage of career development to support learners with Dyslexia-SpLD.

The framework is evidence-based, simple to access and enables:

- individuals and groups to benchmark what they should know and be able to do, to be effective helpers of people with dyslexia/ SpLD, from initial training to specialist,
- effective planning of CPD and further training,
- individual tailored advice on evidence-based CPD and training,

- planning and development of relevant courses at all levels; both accredited and non-accredited,
- organisations to recruit staff with appropriate knowledge and skills.

The framework was created following the Rose Review by The Dyslexia-SpLD Trust through partner organisations Patoss and Dyslexia Action, and in collaboration with teachers, schools, Local Authorities, psychologists, Universities, and government agencies.

28: Hewlett, K. The value to mainstream education of the 'Dyslexic artist' in their cognitive thinking

Central to this research is to explore questions about how these thinking approaches impact on the creative process and bring value to continuous professional development opportunities for professionals in mainstream Post 16 education. Through action research and case study methodology the research sets out to investigate how practicing Dyslexic artists, approach thinking and learning in the process of their work. This investigation seeks to bring value to the intelligences developed and to contextualize the learning styles and social justice debates within mainstream education. The interactive poster will visually, aurally and through text outline some of the research findings to date.

30: Hickmott, O. Visual skills for our very talented visual learners

Visual children are highly intelligent, but often fail in school because they don't learn in the same way as the education system expects. Once they understand their own visual skills and how to control them their whole experience of literacy and numeracy changes as they become engaged, in something they can do. For example youngsters can easily learn "how-to" visualise words, like others do naturally, visualise maths, visualise stories as they read them and remember facts – all visually. Teachers and parents alike will quickly learn during the workshop invaluable skills to guide these child

32: Hyunrin, P. Investigation of Basic Cognitive Abilities Related to Reading in Korean Hangul: Normal and Poor Readers among Children at Third Grade

In this study, we investigated information processing relating to Hangul reading in normal and poor readers. We tested the ability to read, size of vocabulary, and basic cognitive abilities, including visual processing and phonological processing, of 109 Korean children in third grade. In Korean normal readers, vocabulary, phoneme awareness and naming speed serve as factors for predicting reading scores. The result that vocabulary is the first predictor is as well as that Uno et al. (2009) reported for Kanji in Japanese. In poor readers, phoneme awareness and RAN were selected as factors to predict reading scores.

34: Ito, H. Masataka, N. (Kyoto University) Reading ability and phonological awareness in non-dyslexic Japanese adults

Japanese dyslexia is quite unique and difficult to understand because many graphemes are used in the Japanese language. Among Japanese characters, there are phonograms (Hiragana and Katakana), and logograms (Kanji). There are scarcely any screening tests for Japanese dyslexia, so, the number of tests for dyslexia must be increased and made to be more effective. I carried out a study of the correlation between reading ability (oral reading

task) and phonological awareness (phonological deletion task). We tested a group of non-dyslexic Japanese adults. The result was that there is a clear correlation between reading ability and phonological awareness.

36: Iwata, M Murohashi, H. (Hokkaido University)

An investigation on the ability to discriminate vowels from multiple speakers in Japanese using mismatch negativity

Accuracy and speed of phonological discrimination is an important aspect of language development. In our daily use of language, there are slight differences in acoustical features even among the same phoneme. An event related potential called mismatch negativity (MMN) was used in the present study to assess the individuality in the ability to discriminate phonemes (Japanese vowels in this case) from voices of multiple speakers. The result suggested that the MMN was larger in multiple voice condition, but needs further investigation. The amplitude was also compared to phonological awareness task, which suggests negative correlation with spoonerism task.

38: Jackson, A. Being gifted does not guarantee a favourable outcome if you also struggle with dyslexia.

Being gifted and living with dyslexia isn't merely about transposing letters or bad spelling; it's about not being able to quickly and correctly produce an answer or comprehend the required chapter or book at a level that is appropriate to intellect. Secondary school tasks expose the boundary beyond which superior abilities no longer compensate for dis-ability. This is a crisis point for the student and those around him/her. Comments expressed by well meaning teachers such as "You can do better than this, I'll give you tonight to fix it up.....", or "Why don't you learn to spell 5 words every night, I'm sure it will help" are soul destroying. The slide from ability to inability is traumatic and destructive. Without adequate resilience, determination and background knowledge the student and his/her parents may find themselves engaged with the mental health system as experts and parents look for reasons why the student is depressed, disillusioned or suddenly becoming the class rebel. How students survive changes in written requirements, increased need to comprehend complex texts, and the fall from position as the smartest in the class to the one who seeks special provisions, depends on specific focused counselling and skill training. The likelihood of young adults completing school with exam results indicative of their real ability is increased if ongoing supports are put in place early in the student's career. This paper illustrates some of the barriers in the Victorian (Australia) education system for the gifted dyslexic and how some students have clambered over them.

40: Jaworska-Biskup, K. (University of Szczecin) Does developmental dyslexia mean anything for a Braille reader?

This poster analyses the issue of reading difficulties which blind children very often experience when learning Braille. Although reading by touch and reading by vision seem to be entirely different processes they are both highly dependent on phonological skills. The major question the author wishes to pose is whether the problems with reading in Braille can be labeled under the term of developmental dyslexia. The author's pending research will be evoked and put for discussion.

42: Jordanidisz, A. (NILD Hungary, Eotvos Lorand University) The impact of the language of reading instruction on the phonological awareness development of Hungarian children

Phonological awareness is a key factor in learning to read in all the examined languages (Chafouleas et al 1997, Jordanidisz 2009). The aim of this research was to reveal the influence of the language of reading instruction on phonological awareness development when students' first language is Hungarian. In this study, the phonological awareness of a group of Hungarian students learning to read in Hungarian was compared to that of a bilingual group whose dominant language was Hungarian but the language of classroom and literacy instruction was English. Results show that there is correlation between the language of reading and PA.

44: Katsouraki, E. Students with specific learning and emotional difficulties: Applications of activities of learning readiness with the collaboration of School community.

46: Lee, C. Georgis, R. Georgiou, G. Das, J.P. (University of Alberta)
Working memory and reading comprehension in university students

The purpose of the present study was to examine (a) what components of working memory influence comprehension in adults and (b) what other domain-general processing skills influence comprehension beyond working memory. Twenty six university students with poor comprehension were matched to 52 university students without comprehension difficulties on word- and nonword-reading fluency. All participants were tested on measures of working memory, planning, attention, simultaneous, and successive processing. The results indicated that the poor comprehenders experienced difficulties in both processing and storage components of working memory. In addition, they performed worse than good comprehenders on measures of planning and simultaneous processing.

47: Richardson, C. (King's College London)

'I don't know what's wrong with them but they can't read or write. I can't let them do drawing all the time in the Spanish class.'

Drawing on research in the fields of inclusive education and modern language teaching, this paper examines the practices, understandings and perceptions of teachers in relation to the school experience of dyslexic learners in mainstream London schools. This study explores mainstream's claim, within the inclusive approach to education, to be able to meet the needs of dyslexic learners in foreign language lessons. The findings of this small-scale study suggest that dyslexic learners' needs are far from being met in current classroom practices and that teachers continue to feel ill-equipped to 'reach out' to this group of learners.

48: Leveroy, D. (University of Kent) The Practical implications of dyslexia for the actor's process; training and professional practice.

The dyslexic actor has long been prominent in popular culture; Zoe Wanamaker, Orlando Bloom and Susan Hampshire to name but a few. Yet, despite the prevalence of dyslexia within the profession, we know little about the practical implications of dyslexia for the actor's process: the strengths exhibited, challenges presented or strategies employed both in training and in professional practice. This interactive poster will share my current PhD research which explores the experience of the dyslexic actor through interviews and workshops from both actors and trainers, with the aim to identify the connections, if any, between acting and dyslexia, and improve methods of practice.

50: Marotta, L. Varvara, P. Menghini, D. Vicari, S. (Children's Hospital Bambino Gesù, Rome)

Declarative and procedural abilities in children with language based learning disabilities

In literature many studies have described deficits in explicit and implicit memory abilities in children with Language Based Learning Disabilities (LBLD). Few studies have investigated in-depth declarative and procedural memory in the same group of children with LBLD, and even less have correlated these abilities with language and reading. Our data documented several deficits on language and memory abilities in children with LBLD. In particular, a more severe impairment in procedural tasks was found in children with severe reading speed and accuracy deficits. However, deficits in declarative tasks emerged in poor text comprehenders.

52: Maxwell, A. The influence of basic auditory and specific phonological skills on beginning and intermediate reading performance

The role of specific phonological skills in reading development is well known. However, basic auditory skills may provide a distal cause of reading development. We examined the relative influence of phonological and auditory skills on reading. 54 children aged 4;10 to 7;9 were assessed on phonological and auditory tasks, matched across four levels of processing, and on reading. In hierarchical regressions, auditory skills made an independent contribution to reading, after phonological skills had been factored in. Although phonological skills made the biggest contribution, more basic auditory skills could provide a distal cause of reading.

54: McCarron, M. Harrison, A. Mann, G. (Queen's University)

Students with Dyslexia Transitioning to Post-Secondary Education: The effects of an on-line transition program on self-advocacy, self knowledge of dyslexia, and on transition readiness.

Transitioning from high school to post secondary education is significant in the lives of adolescents. Issues that affect students with dyslexia and transition will be presented as well as the necessary components of ongoing transition programs according to the literature. Also, a transition program is evaluated using data from self evaluative questionnaires to validate the effectiveness of the program in the areas of self-advocacy, individual dyslexia knowledge and predictions of student/s transition readiness. The application of principles for advancing self advocacy from relevant literature will be highlighted in reference to the current program as well as future research and re-evaluation.

56: McGeown, S. Moxon, G. Medford, E. (University of Hull)

Phonological skills and the relationship with early reading and spelling strategies

Dyslexia is often characterised by phonological difficulties, however the extent to which children's phonological skills influence their early reading and spelling strategies is unclear. In this study, 112 typically developing readers (54 male, aged 6 – 8) completed assessments of decoding skill, word reading and spelling. Error analysis on the reading and spelling tasks illustrated the use of phonological (letter-sound correspondences) and visual (word specific) strategies. Decoding skill was positively correlated with a phonological (.61) rather than visual (-.36) reading strategy, but conversely correlated with a visual (.43) rather than phonological (.02) spelling strategy. Results are discussed in relation to dyslexia.

58: Menghini, D. Petrosini, L. (University Sapienza of Rome) Mandolesi, L. (University Parthenope, Naples) Vicari, S. (Children's Hospital Bambino Gesù, Rome)

Learning by observation in children with dyslexia

New competencies may be acquired by actually executing a task or by executing a task after having seen how to do it. Thirty dyslexic children were compared with controls on tasks of learning a visuo-motor sequence by observation or by trial and error. Results demonstrate that the dyslexics were severely impaired in learning by observation, were able to detect a sequence by trial and error, and became as efficient as controls in reproducing an observed sequence after a task of learning by doing. The beneficial effect of practice could provide dyslexics a useful chance to acquire new cognitive abilities.

60: Moghaddam, K. (Children's Hospital Bambino Gesù, Rome)

Art Therapy in Improvement of Anxiety and Depression in Dyslexic Students

Dyslexic students suffer from problems such as anxiety and depression. These problems can lead to low social and interactional skills. Art therapy is an approach which can help dyslexic students to release their feelings, emotions, thoughts and fears and it is a way in which students can talk about them. Also, it is better that art therapy approach is performed in peer groups because it can lead to better self-esteem and this will lead to better learning and reading.

62: Murohashi, H. (Hokkaido university)

Similarities and differences of reading difficulty between first and second language in cases of Japanese English learners with developmental dyslexia

Japanese children with developmental dyslexia have more difficulties than typically-developed Japanese children for learning English. It is supposed that most of them had more difficulties for learning Japanese, that is their mother tongue, in their infantile periods. Transparency as language is higher in Japanese than English. It is suggested that there are some similarities and differences of difficulties with phonological processing for learning Japanese and English in Japanese children with developmental dyslexia.

64: Navas, A.L. (Instituto ABCD and FCMSCSP)

How much do health and education professionals know about Dyslexia in Brazil?

Despite scientific advances, dyslexia still raises doubts among health and educational professionals. To investigate general knowledge about Dyslexia in specialized professionals, participants answered a specific questionnaire. They were 105 professionals in several areas: Pediatrician, Psychiatrist, Ophthalmologist, Neurologist, Geneticist, Speech therapist, Psychologist, Social worker. We also interviewed 76 last year students of speech therapy in the State of São Paulo. Only 30% of professionals demonstrated good knowledge about dyslexia. Of the Student group, 37% showed good knowledge.

66: Okumura, Y. Murohashi, H. (Hokkaido University)

Teaching to Read and Spell English words to Japanese middle school students with developmental dyslexia

In Japan, children with difficulty in reading and writing Japanese often have greater difficulty in learning English. This paper will report the course and result of teaching English reading

and spelling to two Japanese middle school students. They both had typical features of Japanese developmental dyslexia, and were struggling with English learning. We taught them reading and spelling using the Phonics and rhyme pattern, and they showed considerable progress in accuracy. Although one of them still have problems with fluency, our methods were shown to be effective for students like them.

68: Pape-Neumann, J. van Ermingen, M. Grande, M. Huber, W. Binkofski, F. (Aachen University) Amunts, K. (Research Centre Jülich, Institute for Neurosciences and Medicine) Heim, S. (Aachen University)

Should we train phonology, reading or both? An intervention study with phonologically impaired dyslexic children.

Intervention programmes administered to pre-school children or first graders that specifically target the phonological deficit improve the performance in phonological and reading tasks. The present study investigated which training method is best suited for the treatment of third and fourth graders with dyslexia that is accompanied by a phonological deficit. A deficit-specific training was compared to a deficit-based reading training and an unspecific reading training (N = 30). Preliminary analysis reveals reading improvement for all training methods, in particular a numeric trend for the deficit-based reading training.

70: Pavey, B. (Institute of Education London)

Teaching and Learning Inferential Statistics in Educational Research – a dyslexia-friendly approach

Within the literature discussing the teaching of inferential statistics there is understandable concern about student difficulties. However there is little focus upon learning difficulty that might have an impact upon students' learning of inferential statistics. This paper explores the possible impact of dyslexia, dyslexia-focused mathematical difficulties, and dyscalculia upon the teaching and learning of statistics knowledge within the context of educational research. It takes a narrative review of the literature, mapping background concepts and focusing upon a small number of key texts. The paper concludes with recommendations for dyslexia-friendly approaches to the pedagogy for inferential statistics within educational research.

72: Savill, N. Thierry, G. (Bangor University)

Intact detection, but deficient engagement: ERP responses to ortho-phonological conflict in dyslexic adults

We investigated attentional capture by pseudohomophones (i.e., incorrect spellings) in compensated dyslexic adults, using the P3a event-related potential (ERP) component as an index. With an adapted ERP oddball paradigm designed to elicit P3a effects, we found that normal readers showed a large P3a to semantically defined target words (animals) and to non-target animal pseudohomophones relative to words and pseudohomophones not relating to animals. Dyslexic readers, however, showed a P3a response to target-relevant pseudohomophones similar to the non-relevant stimuli, despite showing earlier perceptual discrimination in the P2 range similar to control participants. We relate our data to attention-engagement hypotheses.

74: Scheltinga, F. Verhoeven, L.

Improving reading skills and reading motivation of pupils in special education through classroom intervention

We investigated the effect of a classroom reading intervention at schools for special education; i.e. schools for children with 1) speech-language impairments, 2) learning and/or social-emotional problems or 3) severe behavioural problems. Despite education in small groups, specialized teachers and adjusted teaching methods, poor results are obtained for reading achievement. The intervention aimed to improve reading skills by strengthening reading instruction and attention for reading motivation. The intervention condition was compared to a control condition with a total sample size of 850 children. Data on reading skills and motivation were collected at pre-, mid- and post-test. Results will be presented.

76: Song, R. (Tongji Medical college Huazhong Science and Technology University)

Gender, school and family environments are related to the dyslexic children in one district of Wuhan, China

In a cross-sectional survey, we used gradual screening method to diagnose the dyslexic children among 1,096 students from 4 primary schools located in Wuhan, China. There were 69 children diagnosed dyslexia among the whole 1096 children and the prevalence rate was 6.30%. Dyslexia prevalence rate of boys (8.32%) was significantly higher than that of girls (3.94%; $P = 0.003$). We found that children with many stresses of study and dislike study were more likely to be dyslexic. Increasing levels of father's education was significantly associated with the risk of dyslexia. And parents' satisfaction with children's grades was significantly associated with the risk of dyslexia. Our results indicated that the prevalence rate of dyslexia in China was nearly close to that in alphabetic language. The prevalence of dyslexia in boys was higher than that in girls. The prevention and intervention of Chinese dyslexic children should be involved in the improvement of parental rearing style and reducing the stress of study.

78: Shaul, S. Becler-Sivan, I. Breznitz, Z. (University of Haifa) The influence of phonology, orthography and semantics on brain activity while processing words in context: A comparison between dyslexic and regular readers.

While reading different brain regions are activated, and the information from several cerebral areas needs to be integrated and synchronized in order to read fluently and correctly. The aim of the current study was to examine the influence of phonology, orthography and semantics on processing words in context. Behavioural and electrophysiological data were collected from dyslexic and regular adult readers. Differences in reaction time and accuracy were found between the two groups of readers in addition to a different pattern of brain activity. These results reveal the different brain systems which are involved in reading among dyslexics as compared to regular readers.

80: Patel, T. (Aston University)

Auditory temporal processing in dyslexia and comorbid disorders

Neurophysiological measures of temporal processing may be useful in understanding the mechanistic overlap between developmental disorders such as dyslexia, specific language impairment and ADHD. Auditory gap detection provides a measure of temporal resolution on a millisecond timescale, where psychophysical thresholds indicate the shortest silent gap in noise which can be detected. This study focused on developing an optimised Magnetoencephalography paradigm for use with young children and patient populations,

where full compliance and vigilance for a neuroimaging task may not be assured. MEG data were collected using a 252 channel CTF scanner. Participants were presented with a 340 second continuous diotic Gaussian noise stimulus interrupted at jittered intervals around 500ms with pseudo-randomised gap durations of 3, 6, 9, 12, 18 or 30ms. The gradient of the linear relationship between the averaged response amplitude and gap length provided a sensitive metric of physiological sensitivity to gap duration, which can be used to cross-validate results obtained from psychophysical and neurophysiological studies in paediatric populations.

Saturday 4th June 2011	Day 3	Morning
--	--------------	----------------

10.15 –11.45 am Main Auditorium

Paper Session: Neuroimaging Chair: Nicola Brunswick

The neurological correlates of auditory temporal processing and speech perception in adults with dyslexia: a DTI study. **Maike Vandermosten, Bart Boets, Hanne Poelmans, Heleen Luts, Jan Wouters, Pol Ghesquière (Katholieke Universiteit Leuven)**

We scanned 20 normal reading and 20 dyslexic adults using Diffusion Tensor Imaging (DTI). This enabled a non-invasive examination of the white matter tracts between the brain regions of the left lateralized reading network. In addition, as intact myelination of these white matter tracts is important for rapid conduction of action potentials, we hypothesized that a disturbance of myelination would be extremely detrimental for temporal processing. Results indicate that adults with dyslexia have a decreased quality of white matter in the left superior longitudinal fasciculus, and that this bundle shows specific correlations with speech perception, but not with phonology and auditory processing.

Cortical Reading Pathways in children learning to read two distinct orthographies. **Nandini Singh (National Brain Research Centre, India)**

Little is known about the development of cortical networks in children learning to read two distinct orthographies simultaneously. I will present functional neuroimaging activations from 20 children between 8-10 years reading words in English and Hindi. Hindi, written in Devanagari is a transparent orthography whereas English, written in the Roman script is opaque. Behavioural measures consisted of vocal reaction times for word reading in the two languages. Reading networks for English and Hindi in young readers were found to share common features. While word reading in English was more left dominant, that in Hindi was bilateral.

What the word frequency effect reveals about language processing in dyslexia. **Marion Grande, Elisabeth Meffert, Katrin Amunts, Walter Huber, Stefan Heim (University Hospital, Aachen, Germany)**

The present fMRI study investigated word frequency effects during reading aloud and naming in 48 German primary school children. Both the control and the dyslexic children showed increased activation of the left inferior frontal gyrus (area 45) when reading or naming low frequent compared to high frequent items. This effect was even more pronounced in the reading task in the dyslexic children. This pattern of results suggests that decreasing lexical frequency and thus increasing lexical selection demands are associated with higher activation of left area 45 in children like in adults, and particularly so for dyslexic children during reading aloud.

Altered cortical synchronization to auditory stimuli in dyslexia. **Katia Lehongre (Laboratoire de Neurosciences Cognitives, Inserm), Franck Ramus (Laboratoire de Sciences Cognitives et Psycholinguistique), Nadège Villiermet**

(Laboratoire de Sciences Cognitives et Psycholinguistique), Denis Schwartz (CRICM, CNRS), Daniel Pressnitzer (Laboratoire de Psychologie de la Perception, CNRS), Anne-Lise Giraud (Laboratoire de Neurosciences Cognitives)

We investigated the hypothesis that phonological and memory deficits in dyslexia could reflect abnormal auditory sampling in the low-gamma domain. Using magnetoencephalography, structural magnetic resonance imaging and behavior, we show that the asymmetry in auditory entrainment to sound modulations around 40 Hz, a property that underlies hemispheric triage of phonemic information based on asymmetric sampling, is absent in dyslexics. This deficit correlates differentially with behavioral measures of phonological processing, revealing that shifting phonemic sampling to right auditory cortex rescues phonological perception, but impairs phonology production, and vice versa. We further show that verbal memory deficit in dyslexia correlates with enhanced cortical entrainment at higher rates, which reflects phonemic “oversampling”.

10.15 –11.45 am Queens Suite 1

Symposium: Going to school with a language impairment: What are the difficulties and can they be reduced? Chair. Julia Carroll

The predictors of reading in children with and without reading difficulties. **Anna Cunningham, Julia Carroll, Joanne Myers (University of Warwick)**

This talk describes a follow up in middle childhood of 198 children originally tested around school entry on a range of speech, language and phonological skills. Forty-five children in the sample had received speech and language therapy. She will examine how early speech and language skills predict later literacy. In a previous short-term follow up, phonological and non-phonological skills were strong, joint predictors of reading, while speech was not significant. Does non-phonological language become more important as children learn to read more complex texts? More specifically, do phonological skills predict the decoding of texts while non-phonological language skills predict the ability to make textual inferences?

Reading profiles of children with speech, language and communication needs: Comparing children with specific language impairment and autism spectrum disorders. **Jesse Ricketts, Olympia Palikara, Julie Dockrell, Tony Chapman (Institute of Education, University of London), Geoff Lindsay (University of Warwick)**

We present data that investigate the relationship between language and reading in 59 children with specific language impairment (SLI) or autism spectrum disorders (ASD) attending primary and secondary schools. Groups were matched for chronological age and nonverbal reasoning skills. The ASD group outperformed the SLI group on word recognition and reading comprehension tasks. Nonetheless, regression analyses indicated that after controlling for age, nonverbal reasoning and word recognition, a composite measure of oral language explained individual in reading comprehension in both groups. These data will be interpreted within the context of models of reading and indicate that overlapping reading profiles can be observed in SLI and ASD.

Profiling the language skills of secondary school students with language and communication difficulties. **Victoria Joffe (City University, London)**

Research into language development and disorders has routinely focused on early preschool and primary development. However language continues to develop throughout adolescence, and a significant number of secondary school students have communication difficulties which have long-term educational and psychosocial implications. Victoria Joffe presents research that explores the nature of language and communication difficulties in a group of 350, 11-year old secondary school students with below average educational attainment in English. Students showed specific difficulties in expressive semantics and syntax and in idiomatic language. The paper describes the language profiles of this cohort and explores the relationship between educational attainment and language ability. Implications are drawn for appropriate assessment and management.

The Nuffield Language4Reading (L4R) project: Promoting oral language skills to build a secure foundation for reading. **Silke Fricke, Maggie Snowling (University of York), Claudine Bowyer-Crane (Sheffield-Hallam University), Ally Halley, Charles Hulme (University of York)**

The L4R project seeks to explore the role of oral language in developing literacy skills. It aims to establish whether identifying oral language weaknesses in preschool children, and providing language intervention focusing on vocabulary and narrative skills in nursery and Reception helps children at-risk of literacy difficulties to respond to literacy instruction. The project is a randomised controlled trial with the intervention group (N=90) receiving the 30-week L4R intervention delivered by TAs in nursery and Reception. Results demonstrate that the intervention significantly improved specific aspects of language. The paper highlights the role of oral language skills as a foundation for literacy and the implications for the practice of supporting children during the preschool years.

10.15 –11.45 am Queens Suite 2

Paper Session: Socio-emotional issues **Chair:** Ruth Gwernan-Jones

The social and personal consequences of dyslexia: A twenty-year follow-up in Sweden. **Anna Fougathine (Stockholm University)**

I will first give a short overview about the twenty-year longitudinal study, started 1989 and then discuss the outcome of the follow-up study in terms of social and personal consequences of dyslexia based on extensive interviews. The subjects, consisted of a group of poor readers and a control group, also answered a questionnaire about their social adjustment and working conditions and were performing an assessment battery consisting of reading and writing abilities, word recognition, phonological abilities and self-esteem. The outcome of the dyslexia's influence on current everyday life will be reported in terms of well-being, educational and working achievement. The persistence of different difficulties and how compensatory strategies develop will also be discussed.

Developing a social model approach to dyslexia. **Stephen J MacDonald (University of Sunderland)**

Despite recent advances in understanding dyslexia as a neurological condition, a number of academics in the United Kingdom have dismissed the validity of this impairment. This notion

will be explored by analysing the life narratives of adults diagnosed with dyslexia. The aim of this study is to develop perceptual knowledge of dyslexia from adults diagnosed with this condition within a sociological context. In doing so, the study concludes by developing a meaningful (pro-labelling) response to dyslexia diagnosis. This will conclude by discussing the impact that constructed social barriers have in shaping the experiences of people living with this condition.

3-D Pegs in a 1-D hole: **Beverley Steffert (Learning Recovery)**

We describe a series of workshops funded by The Olympiad and undertaken by The Arts Dyslexia Trust and Achieve Ability National Network to give teachers the tools to identify and enhance skill sets in Dyslexic children - usually based on visuo/spatial, musical, artistic, dramatic or design potential, although not inevitably so. This mini skill-identification assessment "The Achievability Index" includes a knowledge of learning styles, design & technology, creativity, self-esteem modulators, optimistic thinking styles and ways to deal with shyness. These are based on surveys of Dyslexic artists, tests run by the Arts Dyslexia Trust website, research on creativity at Central St. Martin's College of Art and Design and other Art, Drama and Higher Education Colleges as well as brain-based research. We hope that this will enable: (i) Dyslexics to define themselves by their abilities, whatever they may be, rather than their disabilities; (ii) To enable teachers to reframe their own, the Dyslexics and the School world from the situation where 10% of children fail, despite their abilities which usually only flourish later in life.

10.15 –11.45 am Queens Suite 3

Paper Session: Learning and Memory **Chair:** Manon Jones

An exploration into the role of executive functioning in the success of dyslexic adults. **Carol Leather (University of Surrey), John Everatt (University of Canterbury, New Zealand)**

Dyslexia in adulthood is much misunderstood. Some dyslexic people overcome their literacy difficulties and achieve a great deal; others are less successful. Research into the success of individuals indicates that good meta-cognitive skills are a key factor in achieving success. This paper outlines research that provides a measurement of success and the results from an analysis of responses to questionnaires completed by 150 dyslexic people. It will explore the relationship between the success criteria and some aspects of executive functioning for people who have dyslexia.

Does poor implicit learning performance in children with developmental dyslexia reflect an implicit abstraction deficit? Evidence from an AGL transfer study. **Elpis Pavlidou, Joanne Williams (University of Edinburgh)**

We examined implicit learning among children with developmental dyslexia and typically developing children using the artificial grammar learning paradigm. In Experiment 1, children were trained using a perfect free call technique to learn the training stimuli. They were then tested on stimuli that utilized the same shape set with the training stimuli. In Experiment 2, the testing items were made up of a different shape set than the one used to create the training stimuli. Only typical children showed implicit learning and transfer of knowledge. We argue that children with dyslexia may face a deficit in abstracting implicit knowledge.

Order or dis-order? Impaired Hebb learning in dyslexia. **Maike Loncke, Arnaud Szmalec (Ghent University), Mike P.A. Page (University of Hertfordshire), Wouter Duyck (Ghent University)**

We present a short-term memory study that offers an integrative account which proposes that dyslexia and its various associated cognitive impairments reflect an underlying deficit in the long-term learning of serial-order information, here operationalized as Hebb learning. In non-dyslexic individuals, improved recall is typically observed when one particular ordered sequence of items is repeated throughout an experimental session, a phenomenon which is known as the Hebb repetition effect. Starting from the general observation that individuals with dyslexia seem to be selectively impaired in cognitive tasks that involve seriality, the present study is the first to test and confirm the hypothesis that the Hebb repetition effect is affected in dyslexia, also in non-verbal modalities. We present a theoretical framework in which the Hebb repetition effect is assumed to be a laboratory analogue of naturalistic word learning, on the basis of which we argue that dyslexia is characterized by an impairment of Hebb learning that affects language learning and processing.

The value of a grapheme-phoneme associative learning task for the diagnostic assessment of dyslexia. **Sebastian Aravena (University of Amsterdam)**

Usually, research on reading difficulties focuses on the result of learning rather than on the learning process itself. We developed an instrument for the diagnostic assessment of dyslexia that is process oriented. This task consists of a computer game in which the child has to learn an artificial orthography by associating phonemes to their corresponding graphemes. In our study reaction times are compared between dyslexic children (N=30) and normal controls (N=30) as a measure of learning progress. The results reveal the learning task components differentiating dyslexic children from controls, and their associations with phonological, letter-speech sound mapping, and reading skills.

Is it true that dyslexics are visual thinkers? A comparison of quality of visualisation when reading for dyslexics, dyspraxics and individuals with ADHD. **David Grant (Independent Chartered Psychologist)**

It is not unusual to encounter the statement that dyslexics are visual thinkers. This statement is examined with reference to the quality of visualisation reported by adults with a diagnosis of either dyslexia, dyspraxia or ADHD when reading. Ratings for an undergraduate group with no diagnosis of a specific learning difference are also drawn upon in this comparison. Data for other forms of visualisation (including visualisation of numbers, words when spelling, and synaesthesia) will also be presented. Implications for assessment and teaching will be discussed.

10.15 – 11.45 am Queens Suite 4

Workshop: A student perspective: Exploring coping strategies and assistive technology. **Neil Cottrell (BDA Young Achiever Award winner, 2010)**

Complementing presentations of research, this session will take a personal and practical perspective, exploring the impact of coping strategies and assistive technology on the education experience of school and university students. The presenter, who graduated recently, relied absolutely on these strategies from an early age, to get around his severe difficulties with reading, spelling, memory and organisation. Session themes include: Promoting early development and adoption of strategies; Using strategies in parallel with

improving impaired skills; Practical advice for developing and adapting coping strategies;
Participants sharing and discussing coping strategies used by their own students.

10.15 –11.45 am Queens Suite 5

Workshop: Photoreading as a tool.
Ginny Stacey (Oxford SpLD Tutors)

PhotoReading is a process which involves seeing whole pages rather than scanning lines. It uses routes into the brain which are different from the standard language ones. For many dyslexic people, it can transform the experience of acquiring information from the written word; it can bring enjoyment into reading. There are some very important techniques in the system that all dyslexic readers need to learn consciously. The workshop will explain the system and give experience of many of the procedures within it; it will discuss difficulties that need to be address for some dyslexic readers.

Saturday 4th June	Day 3	Afternoon
-------------------------------------	--------------	------------------

12.00 – 1.30 pm Queens Suite 1

Workshop: Addressing the Needs of the Individual with SpLD in education and the workplace.

Michael Woods, Katherine Kindersley (Dyslexia Assessment & Consultancy), Sandra Hargreaves (London Metropolitan University), June Massey (Dyslexia Assessment & Consultancy)

The workshop will focus on the importance of providing individual support and training for adults with Specific Learning Difficulties in Higher Education and in the Workplace, including the transition between these two worlds. Using the diagnostic assessment report as a starting point, the workshop will explore how we can tailor the support appropriately to match the particular profile and the needs of the individual. The presentations will address a range of SpLDs including dyslexia, dyspraxia, AD(H)D and Dyscalculia. There will be opportunities for questions and discussion.

12.00 – 1.30 pm Queens Suite 2

Paper Session: Visual and attention mechanisms Chair: Becky Larkin

Correlates of motion sensitivity in children with developmental dyslexia: **Beth O'Brien (University of Cincinnati), Maryanne Wolf (Tufts University), Maureen Lovett (University of Toronto), Robin Morris (Georgia State University), Joel Talcott (Aston University)**

This study examined visual sensitivity to coherent motion in a large sample of 156 children diagnosed with reading disorders, along with a small set of typically-achieving controls (all aged 6 to 9). Motion-coherence sensitivity reliably related to rapid naming and word-reading fluency. Analysis of individual data showed a small proportion had motion sensitivity deficits. This motion-deficit group consisted of more discrepancy-criterion cases, and more naming-speed-deficit cases, but equal numbers of phonological-deficit and phonological-average cases. Individuals with both phonological- and motion-deficits had poorer word reading fluency, lending support to the hypothesis that sensory-level and phonological deficits additively affect reading performance.

The neurological correlates of auditory temporal processing and speech perception in adults with dyslexia: a DTI study: **Madelon van den Boer, Marleen Haentjens, Peter de Jong (University of Amsterdam)**

A visual attentional impairment has been proposed as a non-phonological disorder underlying dyslexia. Valdois et al. (2003) found that a dyslexic reader with good phonological awareness could only report the first letters of a briefly presented five letter string, indicating that not all five letters were processed in parallel. In the current study, this visual attention span task was presented to children with varying reading levels, to investigate visual attention performance in poor versus good readers, and the added value of visual attention span in predicting reading performance above and beyond well-known predictors, including phonological awareness and rapid naming.

Visual-spatial memory in dyslexia. **Alison Bacon (University of Plymouth), Fabrice Parmentier (University of the Balearic Islands, Palma)**

Deficits in memory for verbal sequences in dyslexia are well documented. Visuo-spatial memory is frequently considered intact, however, impairments are observed in recalling visual-spatial sequences in reverse order. Research suggests that an effective strategy for this task involves visualising items as a simultaneous pattern, rather than trying to remember a sequence. This talk presents evidence from two studies suggesting that visuo-sequential deficits in dyslexia may be strategy related. While non-dyslexics successfully employ visual strategies when appropriate, dyslexics employ a sequential approach by default, either failing to switch to an efficient visual strategy, or not utilising it effectively.

Inducing dyslexic symptoms in proficient readers by simulation of phonological and magnocellular deficits: **Stefan Heim, Nicole Tholen, Ann-Christin von Overheid, Marion Grande, Ralph Weidner (Research Centre Juelich, INM-3), Katrin Amunts (Research Centre Juelich, INM-1)**

Reading deficits in developmental dyslexia often result from phonological or visuo-magnocellular deficits. Here, we report a novel technique to simulate dyslexic symptoms in non-dyslexic readers during visual lexical word-pseudoword decisions, tapping either of the two deficits. Lexical decision times were systematically higher for both types of simulation, which did not interact. Pseudoword processing was extra difficult in the phonological simulation, as indicated by a significant interaction of word-type and grapheme-phoneme deficit. The simulation replicates earlier findings in the literature on “real dyslexics”. It thus provides a means for future investigation of novel hypotheses about dyslexia with easy-to-recruit non-dyslexic readers.

12.00 – 1.30 pm Queens Suite 3

Workshop: Research to Practice: how the Slingerland approach as a classroom adaptation of Orton-Gillingham connects research and instructional practices.
Susan Heinz (Slingerland Institute for Literacy)

The Slingerland (R) Approach, a classroom adaptation of Orton-Gillingham, provides multi-sensory, structured, explicit and sequential instructional practices for students who are identified by various labels (dyslexic, English Language Learners, learning disabled, and those having difficulties focusing and staying on task) to improve school success, especially when learning or working with the English language. The structure of the English language is used to systematically introduce students to the alphabetic principle, phonetic elements, morphology, and decoding skills. Vocabulary enhancement and ways to increase fluency, comprehension and the quality of written responses to reading activities will be demonstrated. For teachers and tutors.

12.00 – 1.30 pm Queens Suite 4

Workshop: Facilitating learning in higher education -intervention and support strategies for high functioning dyslexia students.
Mete Wittorff Schmidt, Kirsten Margrethe Hjorth, Laura Kongskov, Bertil Norman Andersen (University of Aarhus)

As educational advisors, how can we support dyslexic students in higher education towards reaching their specific academic learning objectives? Based on our experience at Danish universities, this workshop addresses challenges connected with supporting students and presents three perspectives.

2.00 – 3.30 pm Queens Suite 1

Paper Session: Rapid Naming

Chair: Julia Carroll

The contribution of different lexical skills (RAN vs. lexical learning) to explaining reading and spelling impairments across languages and populations: **Cristina Romani, Effie Tsouknida (Aston University), Valeria Marinelli, Pierluigi Zoccolotti (Università degli studi di Roma La Sapienza)**

Rapid-automatized naming (RAN) involves naming in rapid succession a set of items from a restricted set (e.g., colours or letters). It has received a lot of attention because it is a good predictor of reading and spelling skills even when phonological skills are factored out. This suggests that it taps aspects related to the retrieval and production of words which are important for reading and spelling, and not tapped by phonological tasks which stress instead the manipulation and retention of phonological information. Another task—lexical learning—however, has also been increasingly implicated in explaining lexical deficits in individual with dyslexia. This task involves learning a set of new names—either spoken or written—for pictures of known items over a number of trials. Like the RAN, it taps the quality of lexical storage and lexical retrieval abilities. However, whereas RAN taps more rapid selection in the face of highly activated competitors, lexical learning taps more the ability to create a new representation in the lexical space. In this paper, we investigate the relative contributions of RAN and lexical learning to explaining reading and spelling abilities across languages (English and Italian) and populations (adults and children with and without orthographic impairments).

Sources of variability in dyslexics reading: **Peter de Jong (University of Amsterdam), Eva Marinus (Macquarie University)**

Slow reading is a prime characteristic of dyslexia. Yet another characteristic seems to be a large variability in reading speed. A dyslexic reader might read some words relatively quickly, whereas others are read more slowly. I will present two studies focusing on three sources of intra-individual variability in dyslexic readers: a) sensitivity to word characteristics, b) slow reading and c) noise. In the first study word and pseudoword naming tasks were administered to 24 dyslexic readers individually matched to chronological-age and reading-age controls. The second study concerned rapid naming to explore whether dyslexics variability is specific to reading.

Cross-modal binding in dyslexia: **Manon Jones (Bangor University), Holly Branigan Mario Parra, Robert Logie (University of Edinburgh)**

Our primary objective was to experimentally examine whether dyslexic readers' impairment in creating / accessing grapheme-to-phoneme representations stems from an increased difficulty in integrating or 'binding' visual-phonological (cross-modal) information compared with their non-dyslexic peers. We report three behavioural experiments comparing dyslexic and non-dyslexic adults on their ability to memorise associations between visual-phonological information. Experiments 1a and 1b showed that dyslexic readers are impaired

in their ability to bind cross-modal information (compared with uni-modal information). Experiment 2 confirmed that location information benefits cross-modal binding in dyslexic readers to a lesser degree than non-dyslexic readers.

2.00 – 3.30 pm Queens Suite 2

Workshop: Maths remediation - A multi-sensory approach
Sarah Wedderburn (Unicorn Maths)

Effective maths remediation will ensure that learners gain a secure grasp of numbers, an understanding of numerical relationships and a knowledge of the language of maths, and help them to create visual images that enable them to operate on an abstract level. For this learners need to deal with numbers in a concrete mode allowing for tactile, visual and verbal interaction. The workshop will look at resources that can be used to develop specific maths concepts as well as visual images which aid retention and comprehension. There will be games for reinforcement, to develop confidence and enjoyment and reduce maths anxiety.

2.00 – 3.30 pm Queens Suite 3

Workshop: Dyslexics Achieving their Academic Potential: Two Decades of One College's Successful Approach.
Dorothy Stracher (Dowling College)

Dowling College has created and maintained a successful program for the dyslexic and/or learning disabled for over twenty years. High school graduates who request acceptance into the Program must indicate at their interview that they have the tenacity to commit to the Program's requirements (3 hours of studying per day, attending all classes, etc). Base line testing is done in oral and listening comprehension, isolated word recognition, spelling and syntax; it is repeated every year until the student "tops" the test. Graduate education students serve as individual tutors to jointly develop academic strategies that allow for excellence in cognitive development. These undergraduates who have completed their college careers have become successful in their careers -- law, education, business, social work; approximately 50% continue to graduate school. This workshop will "present" 3 students -- their original testing, yearly achievements including academic strategies, testing progress, grades, etc. The participants will learn how to assess, analyze, develop strategies, evaluate and cause further growth until they have reached their potential.

2.00 – 3.30 pm Queens Suite 4

Workshop: Development of an integrated network to support dyslexia in Brazil: the case of INSTITUTO ABCD.
Ana Navas (ABCD Institute, Brazil)

Despite scientific advances, dyslexia still raises doubts among health and educational professionals. To investigate general knowledge about Dyslexia in specialized professionals, participants answered a specific questionnaire. They were 105 professionals in several areas: Pediatrician, Psychiatrist, Ophthalmologist, Neurologist, Geneticist, Speech therapist, Psychologist, Social worker. We also interviewed 76 last year students of speech therapy in the State of São Paulo. Only 30% of professionals demonstrated good knowledge about dyslexia. Of the Student group, 37% showed good knowledge.

