

2014

**East Asia**

**Joint Symposium**

**on Reading and Spelling**

**The Second Annual Meeting of EARAS**

February 22-23, 2014

Place: Teikyo Heisei University, Ikebukuro Campus Main Building,  
Tokyo, Japan

**Chairpersons**

Professor Akira Uno (University of Tsukuba, Japan)

Professor Masato Kaneko (Teikyo Heisei University, Japan)

**Representatives**

Professor Jeung-Ryeul Cho (Kyungnam University, South Korea)

Professor Li-Yu Hung (National Taiwan Normal University, Taiwan)

Professor Akira Uno (University of Tsukuba, Japan)

# 2014 East Asia Joint Symposium on **Reading** and **Spelling**

DAY : 22nd February 2014

PLACE: Teikyo Heisei University, Ikebukuro Campus Main Building, Tokyo, JAPAN

9:00 – 9:10 Welcoming remarks

Presenters(\*)

Chair.

Prof. Angela

Fawcett

## Symposium 1 (Cognition underlying Reading/Spelling I )

9:10 – 9:35 Stereoacuity is Related to Academic and Visual-Motor Performance in Children with Developmental Disorders

\*Tomohito Okumura (JPN)

9:35 – 10:00 Developmental Change in Reading Acquisition in Arabic amongst Tunisian Primary School Children

\*Soulef Batnini (TUN)

Break Time (10min)

## Symposium 2 (Word attributes)

Chair.  
Dr. Tomohito  
Okumura

10:10 – 10:35 The Word Frequency of Orthographic Neighbors and the Lexicality of Targets Modulate the Purple Effect

\*Masahiro Yoshihara (JPN)

10:35 – 11:00 An Investigation into Lexical and Sub Lexical Spelling Processes for the Writing System of Japanese Kanji in Adults

\*Noriko Akashi (JPN)

11:10 – 12:10 Break Time (10min)

## *Keynote speech*

*Language Universality and Specificity of Reading:  
Alphabetic orthographies vs Non-alphabetic orthographies  
Professor Taeko N. Wydell*

Chair.  
Prof. Akira Uno

12:20 – 13:20 Lunch Time(60min)

13:20 – 15:20 Poster Session

## Symposium 3 (Cognition underlying Reading/Spelling II )

Chair.  
Prof. Ayumi Seki

15:20 – 15:45 Facets of Executive Functioning and Cognitive-Linguistic Skills that Contribute to Reading among Chinese Primary School Children

\*Kevin K.H. Chung (HKG)

15:45 – 16:10 Effect of Cognitive Abilities on Developmental Changes in Reading among Korean Speaking Children –Longitudinal Study from First to Second Grades of Primary School–

\*Yeong-Sil Ju (KOR)

Break Time (10min)

## Symposium 4

Chair.  
Prof. Kevin K.H.  
Chung

16:20 – 16:45 Six-Year Longitudinal Study of Cognitive-Linguistic Factors Predicting Reading and Writing in Japanese

\*Maya Kobayashi (JPN)

16:45 – 17:10 The Functional Phonological Unit of Japanese-English Bilinguals is Language Dependent: Evidence from Masked Onset and Mora Priming Effects

\*Keisuke Ida (JPN)

# 2014 East Asia Joint Symposium on **Reading** and Spelling

## DAY : 22nd February 2014

**PLACE:** Teikyo Heisei University, Ikebukuro Campus Main Building, Tokyo, JAPAN

13:20–15:20

### Poster Session

		<b>Presenters</b>
P1	Orthographic Awareness and Reading in L1 Korean Hangul and L2 English among Korean Learning Underachievers and Average Students in Middle School in Korea	Soon-gil Park (KOR)
P2	The Effect of Coloured Overlays on Reading Speed in Japanese Children with Developmental Dyslexia	Takashi Gotoh (JPN)
P3	Automatic Neural Systems for Reading Emotion from Written Words	Tomoe Inomata (JPN)
P4	Using RTI Data as Predictors of Reading Disability Status	Hsiu-Fen Chen (TWN)
P5	The Characteristics of Reading-Related Skills in Poor Readers, Poor Comprehenders and Normal Readers in Korean 1 to 2 Grades Children	Hyun-Rin Park (KOR)
P6	The Relationship Between Morphological Awareness and Chinese Reading Comprehension of the 3rd and 4th Grade Students in Taiwan	Hsuan-Hui Wang (TWN)
P7	Enhancing Competence and Usefulness of Children with Learning Difficulties to Build Self-esteem and Reading	Thomas Sim (SGP)

# 2014 East Asia Joint Symposium on **Reading** and **Spelling**

DAY : 23rd February 2014

PLACE: Teikyo Heisei University, Ikebukuro Campus Main Building, Tokyo, JAPAN

Presenters(\*)

## Symposium 5 (Screening and Intervention)

Chair.  
Prof. Li-Yu Hung

9:10 – 9:35 Chinese Language Support for Dyslexic Children in Singapore

\*Priscillia Shen  
Peixin (SGP)

9:35 – 10:00 Screening and Intervention for Dyslexia

\*Angela Fawcett  
(SGP)

Break Time (10min)

Chair.  
Prof. Eiji Wakamiya

10:10 – 10:35 Lexical and Non-Lexical Processing of Japanese Adults with Developmental Dyslexia in Word Recognition and Reading Aloud for the Kana Writing System

\*Ami Sambai  
(JPN)

10:35 – 11:00 A Study of the Relationships among Chinese Multi-Character Words, Sub-Types of Readers and Instructional Methods

\*HO,Fuk-chuen  
(HKG)

11:00 – 11:25 Identification of the Subtypes of Chinese Reading Disabilities in Taiwan

\*Li-Yu Hung  
(TWN)

11:25 – 11:30 Closing remarks

22nd Saturday

## **Language Universality and Specificity of Reading: Alphabetic orthographies vs Non-alphabetic orthographies**

**Professor Taeko Wydell**

**Centre for Cognition and Neuroimaging (CCNI)  
Brunel University, UK**

There are some cognitive/neural processes involved in reading that are universal across different languages/orthographies, while there are some processes that are more language/orthography specific. In this paper, these universal processes and language/orthography specific processes are discussed. For example, word characteristics such as word frequency, regularity/consistency, or imageability affect reading in all orthographies, however, the extent/impact of these effects vary across different orthographies. Similarly in the acquisition of literacy, for the alphabetic languages such as English, French, Italian, Finnish, etc. the phonological skills of children appear to be most important , while for non-alphabetic languages such as Chinese or Japanese Kanji, orthographic skills seem to be more important. Both behavioural and imaging studies are presented in the discussion.

Stereoacuity is related to academic and visual-motor performance in children  
with developmental disorders

Tomohito Okumura 1) Tomoko Miura 2) Makoto Nakanishi 3)  
Eiji Wakamiya 3) Hiroshi Tamai 1) 5)

1) Osaka Medical College, LD Center, Takatsuki, Japan  
2) Palm Children's Clinic, Ritto, Japan  
3) Graduate School of Psychology, Kansai University, Suita  
4) Aino University, Faculty of Nursing and Rehabilitations, Ibaraki, Japan  
5) Osaka Medical College, Department of Pediatrics, Takatsuki, Japan

**PURPOSE:** Binocular dysfunctions are common problems that can potentially reduce academic and visual-motor performance (Borsting, 2003; Rouse, 2009; Muzaliha, 2012). Children with developmental disorders, such as learning disability, attention deficit and hyperactivity disorder, pervasive development disorder, could experience more difficulty in academic and visual-motor activities when they are also suffering from visual skills problems including binocular dysfunctions. However, few scientific researches have been conducted to investigate the relationship between binocular dysfunction and academic and visual-motor performance at school in children with developmental disorders. The current study investigated the relationship between stereopsis at near, one of the major parameters of binocular function, and academic and visual-motor performance at school.

**METHOD:** 142 1st to 6th grade school-children with developmental disorders between the age 7 and 12 were retrospectively reviewed and separated into two groups; those with low stereoacuity at near (LS) and those with normal binocular vision (NBV). Vision-related symptom checklist for children (VSCL; Okumura, 2013) and near and far number copying test (n/f NCT; Okumura, 2008) were analyzed to investigate academic and visual-motor performance.

**RESULTS:** Compared to NBV group, more symptoms and lower academic and visual-motor performance were found for LS group on VSCL ( $p<0.01$ ). In addition, whiteboard (far)-to-note (near) copying speed for LS group was significantly slower on n/f NCT ( $p<0.05$ ).

**Keywords:** stereoacuity, binocular function, eye-hand coordination, developmental disorder

Osaka Medical College, LD Center: 2-7, Daigaku-machi, Takatsuki, Osaka 569-8686, Japan  
E-mail: ped906@poh.osaka-med.ac.jp

# Developmental change in reading acquisition in Arabic amongst Tunisian primary school children

Soulef Batnini (University of Tsukuba)  
Akira Uno (University of Tsukuba)

In this study, we investigated the cognitive predictors of reading ability in early Arabic literacy and how they contribute to the developmental change across grades in Arabic speaking children.

Several cognitive and reading tests were carried out on 107 grade 1, 102 grade 2, 115 grade 3 and 110 grade 4 Tunisian children as follows: a general intelligence test; Raven's Coloured Progressive Matrices ( RCPM), basic cognitive abilities tests; phonological processing tests ( non-word repetition and phoneme deletion), visual cognitive test; Rey-Osterrieth Complex Figure Test (ROCF), receptive vocabulary test; Standardized Comprehension Test of Abstract Words (SCTAW), automatization test; Rapid Automatized Naming (RAN), reading achievement tests in vowelized and non-vowelized Arabic(word reading, non-word reading and paragraph reading). Results of multiple regression analysis revealed that the contribution of the four cognitive abilities differed in the development of literacy acquisition according to grade level and orthographic transparency of Arabic script. We suggest that children use two different decoding processing abilities that they may have developed in order to gain lexical access and word recognition in Arabic. As children move to advanced grade levels, they develop new reading strategies as their knowledge of non-vowelized texts increases.

**Keywords:** Vowelized and non-vowelized Arabic, phonological processing, automatization, visual cognition, reading acquisition.

Advanced BDG D217, University of Tsukuba, 1-1-1, Tenohdai, Tsukuba, 205 - 8577, Japan  
E-mail: sbatnini@kansei.tsukuba.ac.jp

The Word Frequency of Orthographic Neighbors and the Lexicality of Targets Modulate the  
*Turple* Effect

Masahiro Yoshihara (Waseda Univ.)  
Yasushi Hino (Waseda Univ.)

There is now considerable evidence that a letter string can activate semantic information appropriate to its orthographic neighbors (e.g., Forster and Hector's, 2002, *turple* effect). According to cascaded models, the *turple* effect size should be larger for stimuli possessing higher frequency neighbors. Using a semantic categorization task with Animal category, however, Mulatti, Cembrani, Peressotti & Job (2008) reported that the effect size was larger for nonwords possessing a low frequency animal neighbor (low-frequency nonwords) than for nonwords possessing a high frequency animal neighbor (high-frequency nonwords). In order to further examine how the *turple* effect size is modulated by word frequency of orthographic neighbors, we conducted semantic categorization tasks with Animal category. Word frequencies of animal neighbors were manipulated for katakana-written nonwords (in Experiment 1) and words (in Experiment 2). Consistent with the results from Mulatti et al., semantic categorization responses were faster for the high-frequency nonwords than for the low-frequency nonwords in Experiment 1. When the critical targets were word stimuli, on the other hand, consistent with the predictions from cascaded models, responses were slower for the words with a high-frequency animal neighbor than for the words with a low-frequency animal neighbor. The implications of these results are discussed.

Keywords: Orthographic neighbor, *turple* effect, Cascaded model, Word frequency, Semantic categorization task

An investigation into lexical and sub lexical spelling processes for the writing system of  
Japanese Kanji in adults

Noriko Akashi<sup>1)</sup>, Ami Sambai<sup>2)</sup>, Akira Uno<sup>1)</sup>, Junichiro Kawahara<sup>3)</sup>, Max Coltheart<sup>2)</sup>

<sup>1)</sup> Graduate School of Comprehensive Human Sciences, University of Tsukuba

<sup>2)</sup> Department of Cognitive Science, Macquarie University

<sup>3)</sup> Department of Psychology, Chukyo University

The purposes of this study were to examine a dual route model of spelling and to investigate possible causes of spelling difficulty in Japanese Kanji. Forty-eight Japanese graduate and undergraduate students performed a spelling to dictation task of Japanese Kanji words, phonological and orthographic lexical decision tasks, and cognitive ability tests. According to the scores on the spelling to dictation task, the participants were divided into 44 good spellers and 4 poor spellers. Spelling latencies in the poor spellers were significantly longer than in the good spellers. Frequency, imageability, and spelling consistency effects were shown in the good spellers' spelling latencies, but only the spelling consistency effect was shown in the poor spellers'. In addition, the latencies of the phonological and orthographic lexical decision tasks did not significantly affect the spelling latencies in the poor spellers contrary to the good spellers. In the cognitive tests, the poor spellers' scores on the vocabulary test were significantly lower than the good speller's. These results suggested that both lexical and sub-lexical processing occurred during spelling to dictation of Kanji words in Japanese adult good spellers, while the poor spellers seemed to have difficulty in lexical processing.

Facets of Executive Functioning and Cognitive-Linguistic Skills That Contribute to Reading among Chinese Primary School Children

Kevin K.H. Chung

The Hong Kong Institute of Education

The present study examined the link between executive functioning, metalinguistic skills, and reading in Hong Kong Chinese-speaking children. One hundred children at Grade 1 were tested on the measures of inhibitory control, working memory, visual-spatial relationship, vocabulary knowledge, phonological awareness, morphological awareness, word reading and reading comprehension. After controlling for age and word reading, executive functioning as a combination of working memory and inhibitory control together made a significant contribution to reading comprehension. Results also revealed that vocabulary knowledge, phonological awareness, morphological awareness, visual-spatial relationship and executive functioning were uniquely associated with word reading and reading comprehension. Findings highlight the importance of executive functioning and metalinguistic skills for learning to read Chinese language.

Keywords: Chinese reading, executive functioning, metalinguistic skills

Name of Author

Kevin K H Chung, Ph.D  
Head and Professor  
Department of Special Education and Counselling  
Faculty of Education and Human Development  
The Hong Kong Institute of Education  
10 Lo Ping Road  
Tai Po, N.T.  
HONG KONG, CHINA  
Email: [kevin@ied.edu.hk](mailto:kevin@ied.edu.hk)  
(Ph) 852 29488526 (Fax) 852 2948 7983

(This project was funded by the Hong Kong Government RGC GRF Grant 841212)

Effect of Cognitive Abilities on Developmental Changes in  
Reading among Korean Speaking Children  
-Longitudinal Study from First to Second Grades of Primary School-

Yeong-Sil Ju (University of Tsukuba)  
Hyun-Rin Park(University of Gwang in Korea)  
Akira Uno (University of Tsukuba, LD/Dyslexia Centre)

The cognitive factors affecting reading abilities change over the course development (Uno et al., 2009). We investigated the developmental changes of reading strategy and the effect of cognitive abilities related to developmental changes in reading in Hangul. 85 Korean-speaking children were tested on their reading skills during grade 1 (2011) and again during grade 2 (2012). Results of multiple regression analysis revealed that phoneme awareness and visual cognitive abilities were significant predictors of non-word reading performance. For word and non-word reading fluency performance, receptive vocabulary and automatization abilities were significant predictors. Results of analysis of variance, revealed a significant interaction between lexicality and grade level. These results suggest that the development of cognitive abilities is related to reading achievement. In addition, our results showed that both the lexical route and non-lexical route were developed during grades 1 and 2.

**Key Word:** Korean Hangul, reading achievement, development of cognitive abilities, reading strategy

Six-Year Longitudinal Study of Cognitive-Linguistic Factors Predicting  
Reading and Writing in Japanese

Maya Shiho Kobayashi (Sophia University, Tokyo, Japan)

Charles W. Haynes (MGH Institute of Health Professions, Boston, MA)

Pamela E. Hook (MGH Institute of Health Professions, Boston, MA)

This study assessed the relative importance of phonological awareness, rapid automatized naming, phonological memory, orthographic processing, and oral reading abilities obtained in a 1st grade sample ( $N=41$ ) for the prediction of reading comprehension and Kanji writing at the 1st, 2nd, 3rd, 4th, and 6th grades. Analyses revealed that measures of oral reading speed and phonological awareness consistently accounted for the unique variance in reading comprehension in all grades. For Kanji writing prediction, oral reading speed and accuracy, orthographic processing, and phonological awareness contributed, but their contributions varied significantly in each grade.

Key Words: Japanese, reading, phonological awareness, RAN (rapid automatized naming), Kanji

The Functional Phonological Unit of Japanese-English Bilinguals is Language Dependent:  
Evidence from Masked Onset and Mora Priming Effects.

Keisuke Ida (Waseda University)

Mariko Nakayama (Waseda University)

Stephen J. Lupker (University of Western Ontario)

Speech production research has revealed that the phonological unit size for phonological encoding depends on language: English monolinguals use phoneme-sized unit when they encode their L1 words, whereas Japanese monolinguals use mora-sized unit. Recent bilingual research has shown that proficient Japanese-English bilinguals use phoneme-sized unit when they encode English (L2) words. The purpose of this research is to investigate whether proficient Japanese-English bilinguals also use phoneme-sized unit when they encode Japanese (L1) words. In a naming task with masked primes, a significant masked onset priming effect was observed for English (L2) words, confirming that they do use phoneme-sized unit when they encode English words. These bilinguals, however, only produced mora-based facilitation for Japanese words. These results suggest that proficient bilinguals use different phonological unit size depending on the language they produce.

Keywords: Masked onset priming effect, Japanese-English bilinguals, Phonological unit-size, Speech production.

Graduate School of Letters, Arts and Science, Waseda University.

1-24-1 Toyama, Shinjuku-ku, Tokyo 162-8644, Japan

Email: [ida@toki.waseda.jp](mailto:idatoki.waseda.jp)

# Poster Session

# Orthographic Awareness and Reading in L1 Korean Hangul and L2 English among Korean Learning underachievers and Average Students in Middle School in Korea

Soon-gil Park<sup>1</sup>, Sun-hwa Kim<sup>2</sup>, Jeung-Reyul Cho<sup>3</sup>

<sup>1</sup>Nambu University, <sup>2</sup>Imho Middle School, <sup>3</sup>Kyungnam University,

Email: [psoongil@nambu.ac.kr](mailto:psoongil@nambu.ac.kr) & [jrcho@kyungnam.ac.kr](mailto:jrcho@kyungnam.ac.kr)

This study examined to compare literacy and cognitive skills between learning underachievers and average students in Korean middle school and to examine cognitive factors that affect students' reading of L1 (first language) Korean Hangul and L2 (second language) English. Participants were 78 underachievers and 121 average students among 7th and 8th graders in South Korea. They were tested with the tasks of nonverbal intelligence test, literacy task (Hangul reading, English reading and Hangul writing), rapid automatized naming tasks of digits and objects, vocabulary, morphological awareness tasks, and orthographic awareness task.

Results were as follows. First, underachievers showed lower performances in the tasks of nonverbal intelligence, literacy, and cognitive skills. Second, literacy and cognitive skills were positively correlated in both underachievers and average student groups. Third, in a combined sample of both underachievers and average students, orthographic awareness explained literacy Hangul reading and writing and English reading after controlling for grade, gender, intelligence; digit naming speed explained Hangul writing and English reading; and morphological awareness explained Hangul writing. This study suggests that learning underachievers perform lower in cognitive skills and literacy and that orthographic awareness are important in reading and writing of Korean Hangul and L2 English among Korean adolescents.

The effect of coloured overlays on reading speed  
in Japanese children with developmental dyslexia

Takashi Gotoh<sup>1)2)</sup>, Akira Uno<sup>2)3)</sup>  
Noriko Haruhara<sup>1)2)</sup>, Masato Kaneko<sup>2)4)</sup>  
Noriko Awaya<sup>2)5)</sup>, Junko Kozuka<sup>2)6)7)</sup>

- 1) Faculty of Health Sciences, Mejiro University  
2) LD/Dyslexia Centre  
3) Faculty of Human Sciences, University of Tsukuba  
4) Faculty of Medical Science for Health, Teikyo Heisei University  
5) Department of Rehabilitation, Tokyo Saiseikai Central Hospital  
6) Graduate School of Comprehensive Human Sciences, University of Tsukuba  
7) Saitama Children's Medical Center

Purpose: The purpose of this study is to clarify the effect of coloured overlays on reading speed in Japanese children with developmental dyslexia.

Method Study-1: We conducted reading tasks in Japanese speaking children (18 normal and 21 children with developmental dyslexia) under controlled luminance condition in order to reveal the effect of the colour factor by coloured overlays on reading speed. We evaluated the duration time of reading tasks of hiragana words, katakana words, hiragana non-words, katakana non-words, and paragraphs. The duration time of the reading tasks was measured with and without coloured overlays and neutral density overlays. Participants were asked to read the text aloud as quickly as possible and without errors. We controlled the experimental conditions with regard to luminance, distance between participants and stimuli, word attributes, instruction, order effect, and placebo effect. Study-2: Participants are Japanese speaking 12 normal and 12 children with developmental dyslexia under uncontrolled luminance condition in order to reveal the effect of the colour factors, using coloured overlays, on reading speed. Procedures were those used in study-1, but we did not compensate the loss of surface illuminance on tasks under coloured overlays and neutral density overlays conditions.

Results: Normal and dyslexic group did not show a significant difference in reading duration under the three conditions in both study-1 and 2.

Conclusions: Our results suggest that changing the background colour and luminance using coloured overlays does not improve reading speed in Japanese children with developmental dyslexia.

Key words: developmental dyslexia, coloured overlays, reading, fluency, intervention

Takashi Gotoh, Ph.D. / Speech-Language-Hearing Therapist

Faculty of Health Sciences, Mejiro University (320 Ukiya, Iwatsuki-ku, Saitama-shi , Saitama, 339-8501, JAPAN)

E-mail : goto@mejiro.ac.jp

The Characteristics of Reading-related skills in Poor Readers, Poor Comprehenders and  
Normal readers in Korean 1 to 2 grades children.

Hyun-Rin Park (Gwangju University)

Akira Uno (University of Tsukuba)

The purpose of this study was to clarify the characteristics of reading-related skills of children with poor comprehenders and poor readers in Korean lower grades (grade 1 and 2) children. Children were divided into three groups based on scores of reading comprehension and word decoding tests. The "poor comprehenders" scored lower than -1SD only in reading comprehension tests' score(n=14), the "poor readers" scored lower than -1SD in both reading comprehension and word decoding tests' scores(n=19), and "normal readers" scored higher than -1SD in both reading comprehension and word decoding tests' scores(n=20). We tested their ability to read (reading comprehension, word decoding), nonverbal intelligence, receptive vocabulary, phonological short-term memory, phonological awareness, and visual cognitive processing. The results indicated that children with poor readers had significantly lower performance on the naming speed, phonological awareness, receptive vocabulary and phonological short-term memory. While, the results of poor comprehenders indicated that only significantly lower performance on the phonological short-term memory. Notably, the score of phonological short-term memory in poor comprehenders were prominently lowest among three groups, while all test's scores of reading-related skills had shown the lowest scores in poor readers except phonological short-term memory.

Keywords: reading comprehension, poor readers, poor comprehenders, phonological short-term memory

227, Hyodeong-ro, Nam-gu, Gwangju, South Korea

Dept. of Speech, Language and Psychological Therapy, Gwangju University

## Automatic neural systems for reading emotion from written words

Tomoe Inomata (University of Tsukuba)  
Kimihiro Nakamura (Kyoto University)  
Akira Uno (University of Tsukuba)  
Hidenao Fukuyama (Kyoto University)

Reading is generally known to involve distributed regions in the left hemisphere. However, previous research suggests that written words with emotional valence activate additional neural components distinct from this reading network. We examined the entire stretch of the neural systems for emotion words and its potential hemispheric bias by using functional magnetic resonance imaging. Fifteen healthy adults participated in the present study. In each trial, participants made concrete/abstract judgment about a centrally presented target preceded by a masked prime flashed to the left or right visual field (Fig. 1). Targets and primes, each having either positive or negative emotional valence, were either emotionally congruent or incongruent with each other. Behaviorally, positive and negative primes produced opposite patterns of congruency priming irrespective of their visual field (Fig. 2), creating a significant interaction between affect type and emotional congruency. At the neural level, this affective priming was associated with repetition suppression in the right temporo-parietal junction and amygdala previously associated with emotion processing (Fig. 3). These results suggest that subliminal emotion words rapidly engage these structures outside the typical reading network in the left hemisphere, and that this automatic activation occurs irrespective of the functional requirements of behavioral tasks.

**Keywords:** masked priming, affective priming, functional magnetic resonance imaging, Kanji word

Graduate School of Comprehensive Human Sciences,  
University of Tsukuba

Advanced Research Building D-520, University of Tsukuba,  
1-1-1, Tennohdai, Tsukuba, Ibaraki, 305-8577, Japan Email: [inomata@kansei.tsukuba.ac.jp](mailto:inomata@kansei.tsukuba.ac.jp)

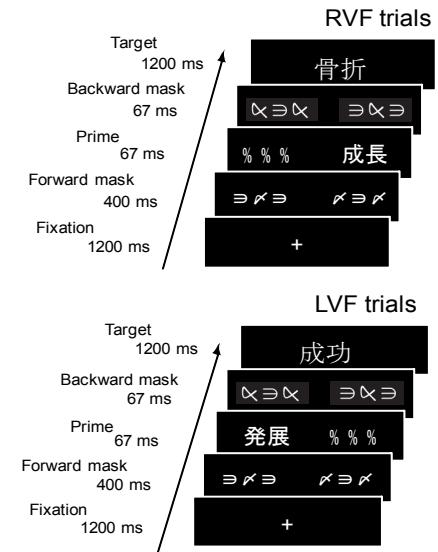


Fig. 1. Behavioral paradigm

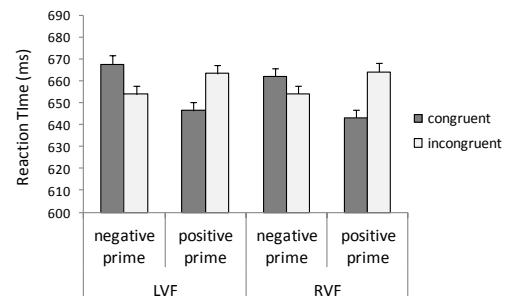


Fig. 2. Mean reaction time for correct responses

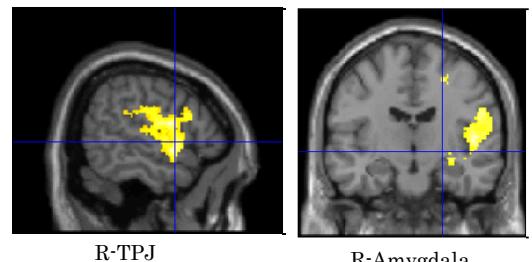


Fig. 3. Repetition priming effects: incongruent minus congruent ( $p < .005$ , uncorrected).

## Using RTI Data as Predictors of Reading Disability Status

Hsiu-Fen Chen<sup>1</sup> & Li-Yu Hung<sup>2</sup>

1 )Special Education Center, National Taiwan Normal University

2 )Department of Special Education, National Taiwan Normal University

This research focused on Reading Disabilities (RD), and the main purposes were to determine what kind of data could be used as an alternative to identifying students with RD. The sample were 53 eighth grade students from the northern Taiwan, which had participated in a one-year literacy remedial program, for a total of 44 lessons with small groups. The program qualifies as a Tier-2 intervention, and used the standard protocol approach, so the instructors were supervised for implement fidelity. Five criteria of RD suggested by Ko & Hung (2007) were executed to designated reading disabilities status. Logistic regression models was employed to assess levels of data as predictors of RD. Model 1 contained only four index scores from IQ data (VCI, POI, FDI, PSI index), Model 2 was a combination of IQ and pretest data of Word Knowledge (WK) and Passage Reading (PR), Model 3 added the growth slope data from WK and PR, and Model 4 put in the posttest data of WR and PR to form a full model. The results showed Model 4 was the best model because of the highest success rate (78.8%), and better specificity of 79.2% was associated with acceptable sensitivity of 78.6%. However, the Verbal Comprehension Index (VCI) in IQ test is the important predictor when making comprehensive measurement in identification.

Key words: RTI, reading disabilities, adolescent

# The Relationship Between Morphological Awareness and Chinese Reading

## Comprehension of the 3<sup>rd</sup> and 4<sup>th</sup> Grade Students in Taiwan

Hsuan-Hui Wang (National Taiwan Normal University)

Li-yu Hung (National Taiwan Normal University)

The purpose of this study was to find out the relationship between morphological awareness and Chinese reading comprehension. The participants were 277 elementary school students from the 3<sup>rd</sup> to 4<sup>th</sup> grades in Taipei. All participants were administrated with intelligence and vocabulary tests and 5 morphological awareness tasks. Chinese morphological awareness (MA in short) on the basis of literature includes “morpheme discrimination”, “semantic radical awareness”, “morpheme interpretation”, “morpheme construction”, and “construction rule awareness.” The data was analyzed by Pearson product-moment correlation, partial correlation, multiple regression analysis.

The major findings shows that morphological awareness was not only correlated with reading comprehension, but also made significant contribution to reading comprehension even after controlling the intelligence and vocabulary. The significant predictors of MA to reading comprehension are three: morpheme interpretation, morpheme construction, and semantic radical awareness. The most powerful predictor is “morpheme interpretation.” This result might be due to the fact that Chinese readers have to infer lexical meanings based on morphemes because in Chinese compound words are formed by composing two or more simple morphemes more often than in other languages. According to the findings, the recommendations to the future studies and education implication are made.

**Keywords:** morphological awareness, reading comprehension, elementary school student

National Taiwan Normal University

162, Sec. 1, Heping E. Rd., Taipei 10610, Taiwan

Department of Special Education

[modereto@gmail.com](mailto:modereto@gmail.com)

**Enhancing Competence and Usefulness of Children with  
Learning Difficulties to Build Self-esteem and Reading.**

Rachel Pereira (London Metropolitan University)

Thomas Sim (DAS Academy)

Self-esteem of children with Learning Difficulties (LD) was built using competence and usefulness enhancing strategies on a daily basis in a classroom setting to investigate the impact of building self-esteem on reading ability. This research adopted a quasi-experimental pre and post-test design, with an intervention group ( $n=6$ ) and a control group ( $n=6$ ). There were no significant differences between the two groups before intervention. Results showed a significant increase in the post intervention self-esteem scores of participants in the intervention group and no significant increase of the self-esteem scores of the control group. This indicated that the self-esteem intervention was successful. Results also showed a significant increase in reading abilities in the scores of the intervention group and no significant increase in reading abilities in the control group. Together, these results indicated that building self-esteem in a classroom environment is possible and this in turn can increase reading ability. As the sample size is small, the research will be repeated with a larger sample in order to confirm the results.

**Keywords:** Self-esteem, reading, competence, usefulness, learning difficulties.

Dr Thomas Sim  
Executive Director  
DAS Academy  
73 Bukit Timah Road  
#05-01 Rex House  
Singapore 229832  
[thomas@dasacademy.edu.sg](mailto:thomas@dasacademy.edu.sg)

23rd Sunday

## Chinese language support for dyslexic children in Singapore

Priscillia Shen Peixin, MA SpLD, DAS Academy, Lecturer

Liu Yimei, Dyslexia Association of Singapore, Specialist Psychologist

Singapore's bilingual education policy has put many of our Chinese children in a very unique environment in learning at least two languages of different orthographies and sound-symbol mapping systems. Most studies on dyslexia have been done with relation to English language, but there is still no widely accepted theory or intervention for Chinese language. The interest in understanding the differences and difficulties in learning Chinese as a second language with the presence of dyslexia has resulted in research efforts at the Dyslexia Association of Singapore (DAS) since 2009. The pilot research in 2010-11 concluded that while Chinese literacy skills and visual perceptual skills were found to be weaker in the presence of dyslexia, visual memory was found to be an underlying visual perceptual skill besides phonological processing skill and auditory memory in Chinese language processing. This had influenced the development of remediation support in Chinese for our dyslexic students at the DAS. With over 50 students currently receiving intervention in Chinese language, the battery of Chinese literacy tests created for pilot study in 2010-11 were adapted and used to assess the effectiveness of the Chinese intervention programme by conducting pre- and post-assessments of literacy skills. Preliminary findings of current research phase will also be shared.

Keywords: dyslexia, intervention, Chinese, second language, Singapore

Dyslexia Association of Singapore, DAS Academy,  
73 Bukit Timah Road, Rex House, #05-01, Singapore 229832  
[priscillia@dasacademy.edu.sg](mailto:priscillia@dasacademy.edu.sg)

## Screening and Intervention for dyslexia

Emeritus Professor Angela Fawcett  
(Swansea University, and Academic director  
for the Dyslexia Association of Singapore)

In this talk I present a model for screening and intervention for dyslexia in the early school years. Research e.g. Torgesen 2001 has shown that the earlier dyslexic problems are identified the more effective and cost effective intervention can be. Results are presented from 3 published studies, with aged 5, (Nicolson and Fawcett, 1999), aged 7 (Fawcett and Nicolson 2001), and aged 4 (Fawcett, Lee and Nicolson, 2014). All screening was based on published Dyslexia screening tests (Nicolson and Fawcett, 1996, 2003; Fawcett and Nicolson 1996, 2005). All interventions took place in small groups for an hour weekly over a 10 week period. In the 1<sup>st</sup> 2 studies, reading and spelling standard scores were accelerated into the average range, using a remedial scheme based on phonics, meaning and fluency. In the 3<sup>rd</sup> study, a pre-reading intervention was used and at-risk children who were followed up from age 4 to ages 5.8 showed no risk following an explicit intervention. The model for screening and intervention is now in use in 36 schools in Wales, where 75% of children have improved in their risk scores and their reading, and records will be maintained to age 10. Implications for Asia will be discussed.

### Keywords

Screening, intervention, at-risk, dyslexia, reading

Swansea University  
Department of Psychology  
Vivien Tower, Singleton Park,  
Swansea, SA28PP  
[a.j.fawcett@swansea.ac.uk](mailto:a.j.fawcett@swansea.ac.uk); angela@das.org.sg

# Lexical and non-lexical processing of Japanese adults with developmental dyslexia in word recognition and reading aloud for the Kana writing system

Ami Sambai (University of Tsukuba)

Max Coltheart (Macquarie University)

Akira Uno (University of Tsukuba)

Noriko Haruhara (Mejiro University)

Our aim was to investigate lexical and non-lexical processing in word recognition and reading aloud for the Kana writing system in Japanese adults with developmental dyslexia. 48 normal adults and 7 developmental-dyslexic adults performed reading aloud tasks, an orthographic lexical decision task, and a phonological lexical decision task. The dyslexic group read Kana nonwords aloud more slowly than the normal group and showed a big length effect for Kana words, whereas normal readers did not show this effect. These results suggested non lexical reading processing was slow and lexical reading processing was not efficient in the dyslexic group. Neither accuracy nor speed differed significantly between groups in the phonological lexical decision task overall, although three dyslexics showed poor performances in accuracy or speed. In contrast, the dyslexic group showed significantly poor performances on the orthographic lexical decision task in speed but not in accuracy overall, although two dyslexics showed low accuracy. We conclude that the main problems of the dyslexic group were slow non-lexical reading processing as well as slow access to the orthographic lexicon in lexical reading processing, although some dyslexics had also problems in phonological lexicon size, orthographic lexicon size, or access to the phonological lexicon.

## Key-words

developmental dyslexia, Kana, lexical reading processing, non-lexical reading processing

## Contact

Name: Ami Sambai

Address: 1-1-1, Tennohdai, Tsukuba, Ibaraki 305-8577, Japan

The department: Faculty of Human Sciences, Division of Disability sciences

E-mail: ami\_sambai@yahoo.co.jp

A study of the relationships among Chinese multi-character words,  
sub-types of readers and instructional methods

HO, Fuk-chuen, PhD  
Hong Kong Institute of Education

This paper reports the results of a study examining the effectiveness of the whole-word and analytic instructional methods in teaching different sub-types of readers (students with normal reading performance, surface dyslexics, phonological dyslexics, and students with both dyslexic patterns) four kinds of Chinese two-character words (two regular [RR], two irregular [II], one regular one irregular [RI], and one irregular one regular [IR]). The approaches employed were the analytic method, which focuses on highlighting the phonological components of words, and the whole-word method, which focuses on learning by sight. Two studies were conducted among a sample of 40 primary school students with different reading patterns. The aim was to examine the relationships among different sub-types of readers, two-character words, and instructional methods. In general, students with a surface dyslexic pattern benefited more from the analytic methods. Regarding combinations of different kinds of two-character words, all sub-types of students performed better in reading RR words than in reading II words.

# Identification of the subtypes of Chinese Reading Disabilities in Taiwan

Li-Yu Hung 1)

Lun-Jui Chang 2)

- 1) Department of Special Education National Taiwan Normal University
- 2) Department of Special Education National Taiwan Normal University

Catts and Kamhi (1999) adapted Simple view of reading model as their studies of subtype of reading disabilities. The study followed the model to survey the subtypes of Chinese reading disabilities in the 6 schools in three areas in Taiwan. Only students of G2, G4, and G7 were selected to participate in the study: 1126 students in total. Six-step identification procedure implemented in each school: (1) screening by reading competence, (2) excluding other factors, (3) detecting high-risk RD students, (4) excluding low IQ, (5) identifying the subtypes of RD, (6) diagnosing the cognitive profile. Those with IQ above 85 and score of word recognition below -1SD were identified as dyslexia, and those with normal IQ and score of listening comprehension below -1SD were hyperlexia. Those with normal IQ but poor in word recognition and listening comprehension were language learning disabilities (LLD). Three subtypes in total account for 10.48% of participants. The percentage of three subtypes varied with grades, however, the percentage of hyperlexia subgroup is most stable, about 40%. The percentage of dyslexia subgroup is 40% in G2 students, but it decreases as 17% in G7, on the contrary, the percentage of LLD is 10% in G2, 34% of in G4.

Keywords: dyslexia, hyperlexia, reading disability, Chinese