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Speech Therapy to Support the Literacy Needs of School-Aged Students in Hong Kong

Dustin Lau

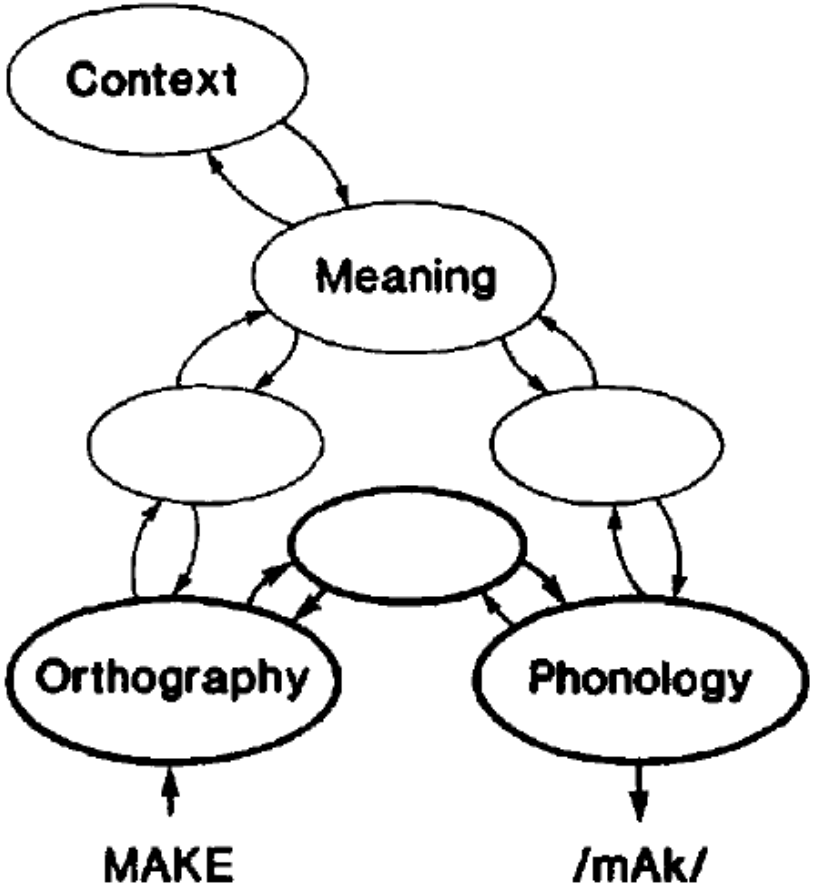
Department of Language Science and Technology

The Hong Kong Polytechnic University

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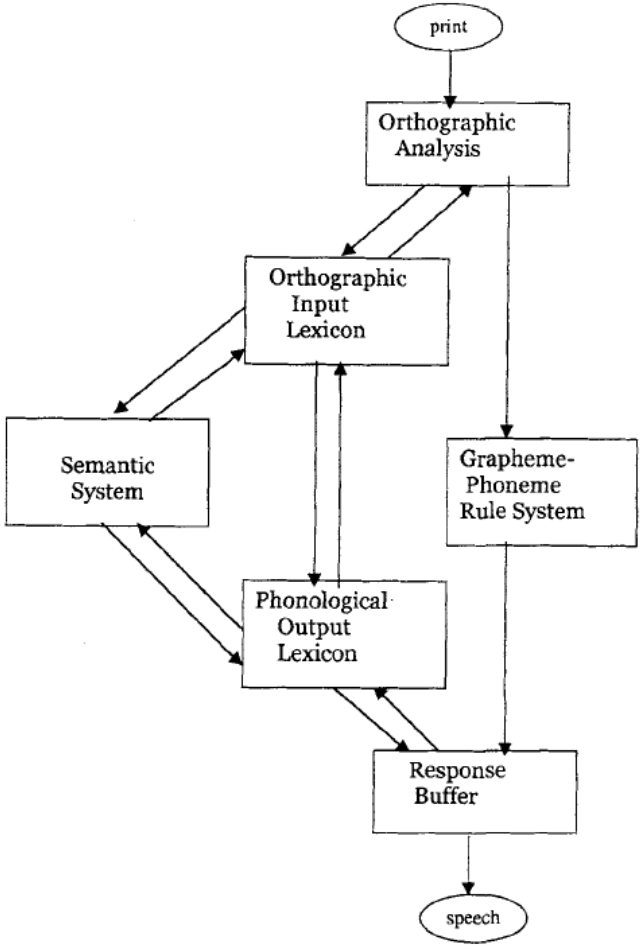
Theories of reading and writing in Chinese

“Triangle” model (Seidenberg & McClelland, 1989)



Dual-route (cascaded) model (Colheart et al., 2001)

- Regular words
  - E.g. hat
- Irregular (exception) words
  - E.g. pint
- Pseudowords
  - E.g. *smat*



Dual-route model of reading/writing Chinese (Weekes et al., 2006)

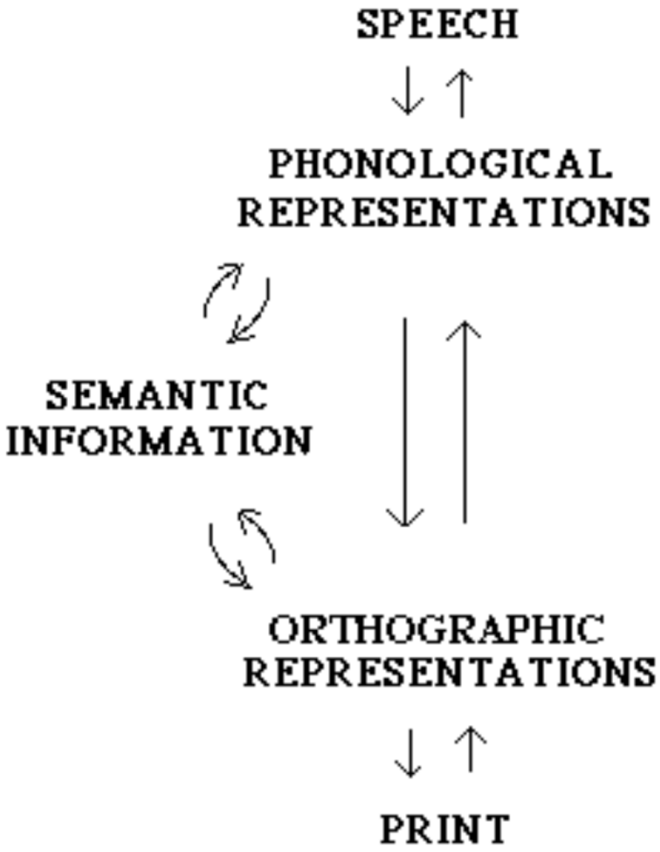


Figure 1: Functional model of reading and writing in Chinese

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Knowing the rules

Metalinguistic awareness

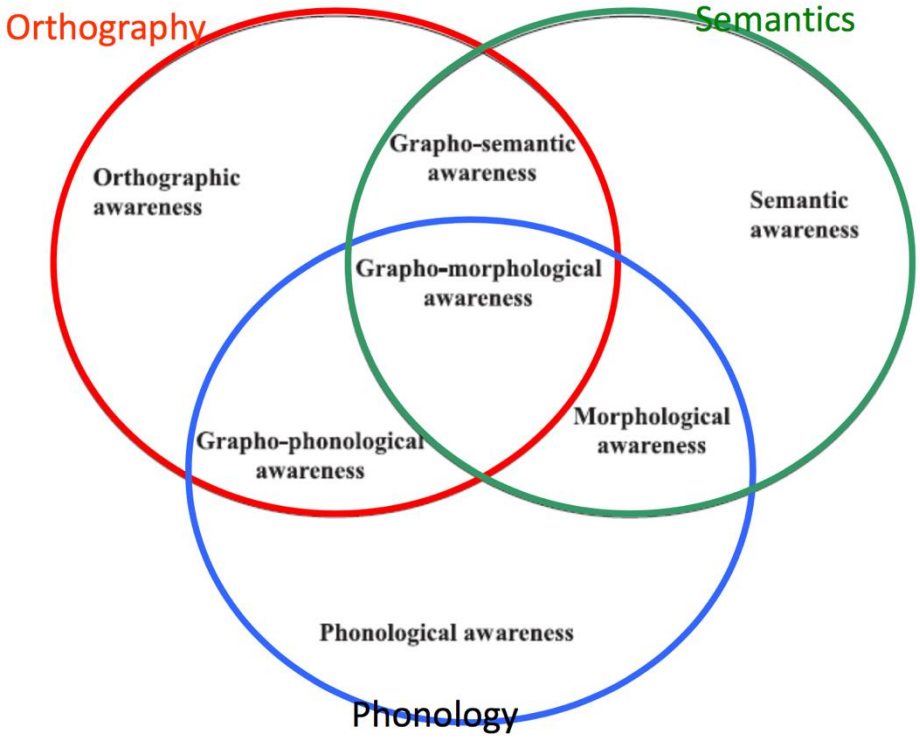
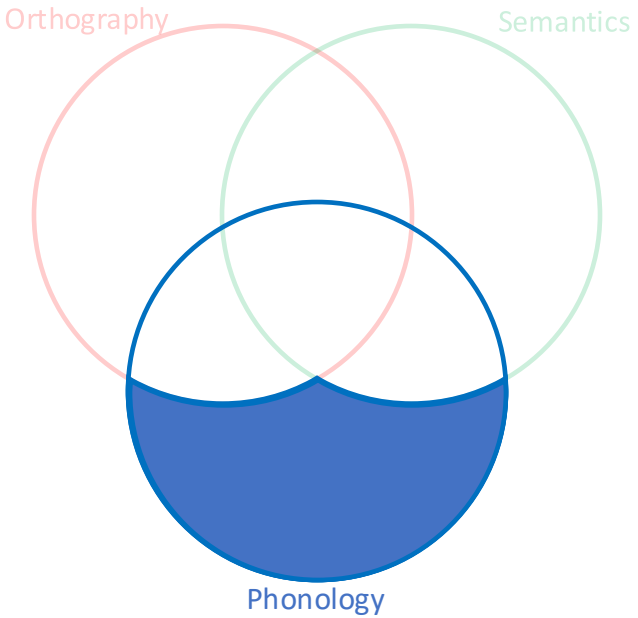


FIGURE 1 Interrelation between different aspects of metalinguistic awareness.

Kuo & Anderson (2006)

Metalinguistic awareness

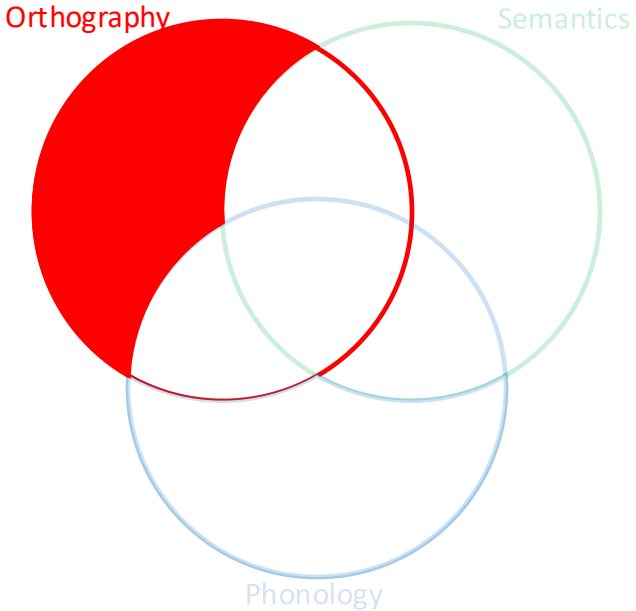
- Phonological awareness
  - "… ability to reflect on and manipulate basic phonological units of a language…" (Kuo & Anderson, 2006)
  - E.g. say the word "clear" without the /k/



Orthographic awareness

- Basic orthographic units of a language
- Rules: E.g. What's "legal", what's "illegal"…

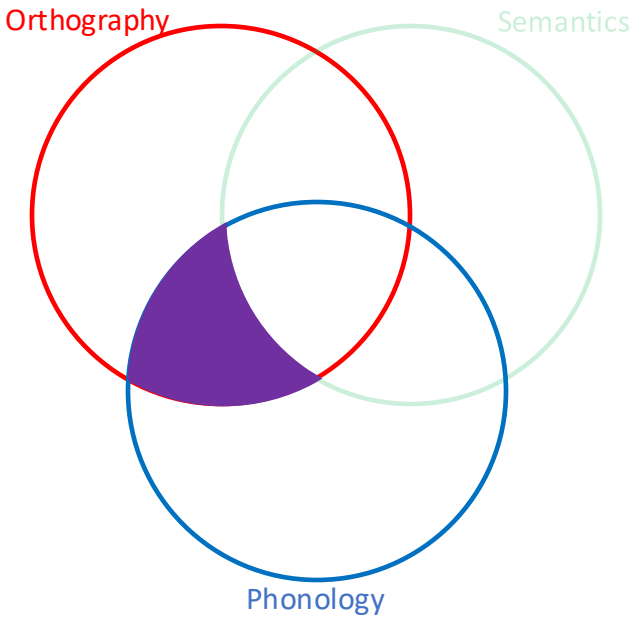




Grapheme-phoneme correspondence (Ortho – Phono)

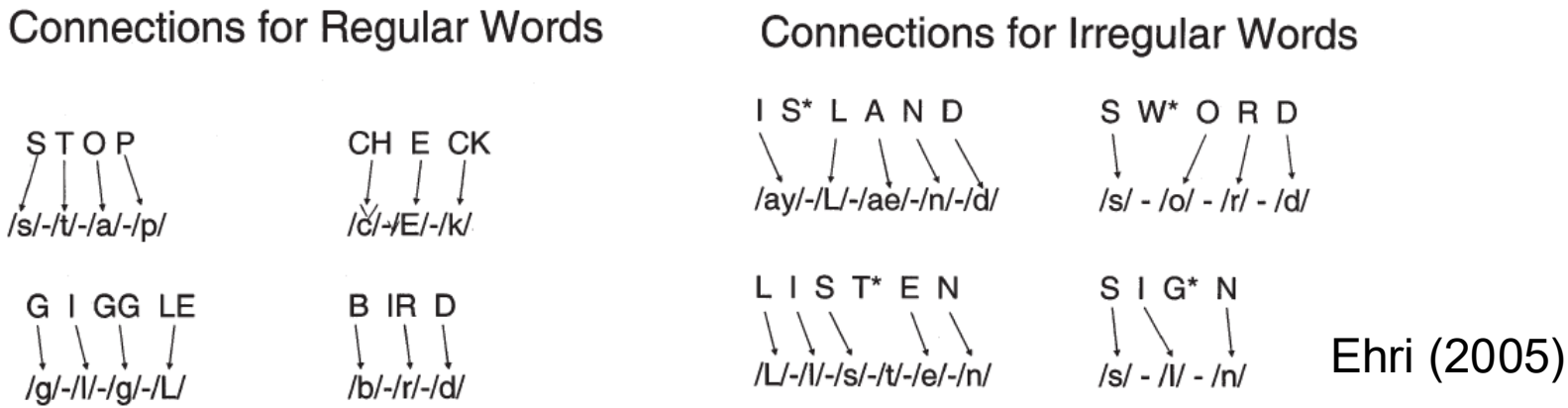
- E.g. hat

/ h æ t /



Con’t

- Not that simple actually…

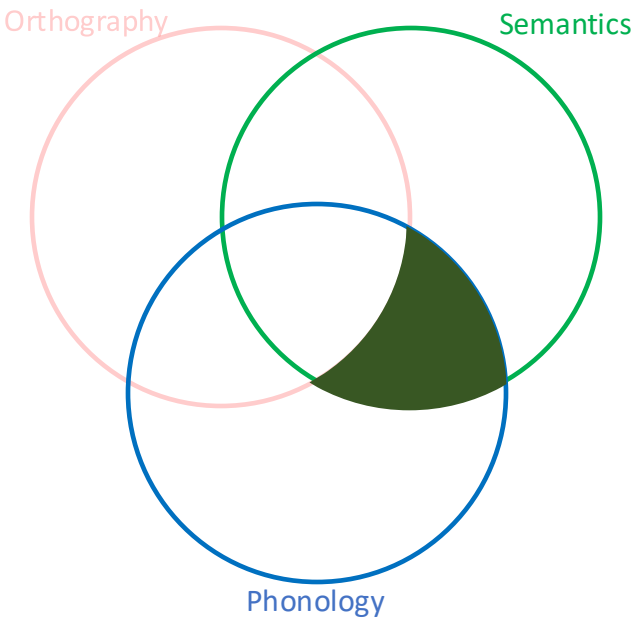


Ehri (2005)

- Orthographic “patterns”
  - E.g. “-ake” in “bake”, “cake”, “take”, “wake”

Morphological awareness (Phono – Semantics)

- Basic meaningful units of a language (oral)
  - dogs = dog (plural)
  - teacher = teach + -er
- Knowledge about word combinations
  - cat vs cats
  - top vs stop



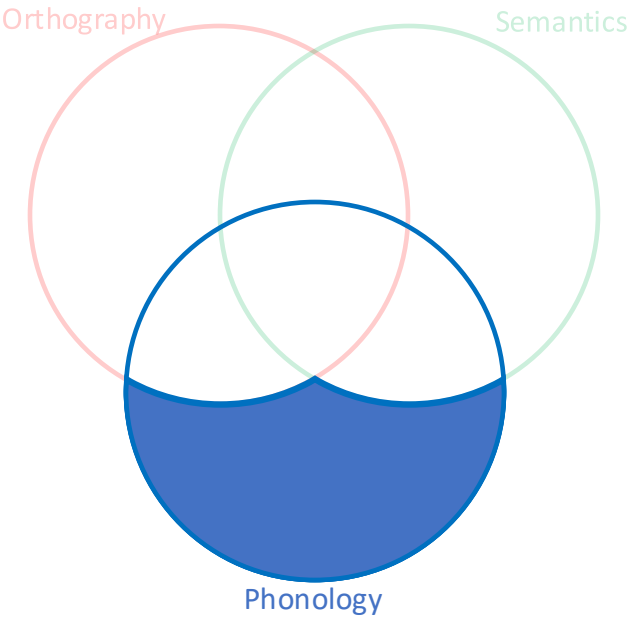
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Applications in Chinese



Phonological awareness (Ho et al., 2007; McBride et al., 2003)

- Syllable deletion
  - 「電單車」唔講個「車」字係咩?
- Onset-Rhyme awareness
  - /si/ - /sa/ - /ce/ 邊個唔一樣呀?
  - /baa/ - /saa/ - /di/ 邊個唔一樣呀?



Empirical data

- McBride et al. (2003) JEP

Table 3
Hierarchical Regression Equation Predicting Chinese Character Recognition for Kindergarten (K3), Second-Grade (P2), and Combined Sample

Step and variable	K3		P2		Combined sample	
	ΔR^2	R^2	ΔR^2	R^2	ΔR^2	R^2
1. Age	.022	.022	.002	.002	.540***	.540
2. Visual matching, cross out	.054	.076	.174***	.175	.092***	.631
3. Vocabulary elaboration	.188***	.263	.072**	.247	.050***	.681
4. Syllable deletion, onset phoneme deletion	.042	.306	.045	.292	.018**	.699
5. Rapid number naming, rapid object naming	.063*	.371	.056*	.347	.025***	.724
6. Morpheme identification, morphological construction	.087**	.457	.034	.381	.031***	.756

* $p < .05$. ** $p < .01$. *** $p < .001$.

Empirical data

- Lau et al. (2015) CLP

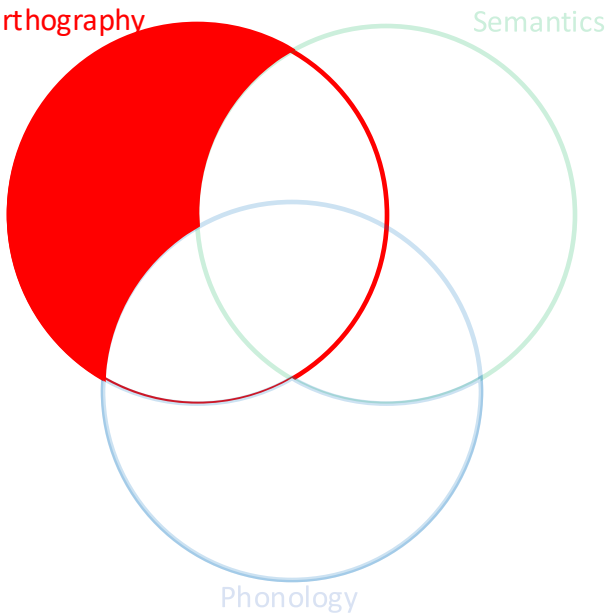
Table 3. Standardised coefficient (β) and ΔR^2 at the two steps of HRA using accuracy scores in different reading tasks as dependent variables.

	β	T	ΔR^2
Dependent variable: non-phonetic compounds naming			
Step 1			0.11***
Raven	0.01	0.24	
Step 2			0.28***
Phonological awareness – Rhyme	0.15	2.34*	0.08***
Phonological awareness – Syllable	0.16	2.74**	0.05***
RAN	−0.11	−2.11*	0.05***
Pinyin_Iso	0.14	2.29*	0.04***
Orthographic awareness	0.16	3.09**	0.03***
Pinyin_Real	0.13	2.00*	0.02*
Morphological awareness	0.14	2.33*	0.01*
Dependent variable: Irregular phonetic compounds naming			
Step 1			0.16***
Raven	0.07	1.25	
Step 2			0.30***
Phonological awareness – Rhyme	0.18	3.07**	0.10***
Pinyin_Iso	0.22	3.91***	0.07***
RAN	−0.12	−2.32*	0.05***
Phonological awareness – Syllable	0.1	1.86	0.03***
Orthographic awareness	0.14	2.54*	0.01*
Morphological awareness	0.1	1.76	0.01*
Pinyin_Real			
Dependent variable: Regular phonetic compounds naming			
Step 1			0.10***
Raven	0.02	0.29	
Step 2			0.22***
Phonological awareness – Rhyme	0.24	3.66***	0.12***
Pinyin_Iso	0.24	3.88***	0.13***

*$p<0.05$; **$p<0.01$; ***$p<0.001$.

Orthographic awareness

- Basic orthographic units of Chinese
- Word 詞語 荷花
- Characters 單字 荷 花
- Radicals 聲旁 / 形旁 艹何 艹化
- Logographemes 部件 艹亻丁口 艹亻匕
- Strokes 筆劃 一丨丿一丿丨一亅丶 一丨丿一丿丨乚一



Empirical data

- Yeung et al. (2011) *SSR*

TABLE 3
Standardized Betas for Regression Equations Predicting Word Reading and Word Spelling From Reading-Related Skills Measures After Controls for Differences in Age, IQ, and Oral Vocabulary

	Word Reading			*Word Spelling*		
Final Step Predictor	B	SE B	*β*	B	SE B	*β*
Age	−0.02	0.33	0.00	−0.06	0.07	−0.04
IQ	0.14	0.10	0.07	−0.01	0.02	−0.02
Oral vocabulary	−0.03	0.31	−0.01	0.03	0.06	0.02
Phonological awareness	0.04	0.60	0.00	0.22	0.12	0.10
Orthographic skills	2.63	0.49	0.29***	0.25	0.10	0.15*

*$p < .05$. **$p < .01$. ***$p < .001$.

TABLE 4
Unique and Common Contributions of Age, IQ & Oral Vocabulary, Orthographic Skills, and Morphological Awareness to Word Reading and Word Spelling

Predictor	*Word Reading*	*Word Spelling*
Unique contributions		
1. Age, IQ & oral vocabulary	0.025	0.020
2. Orthographic skills	0.097	0.027
3. Morphological awareness	0.065	0.132
Common contributions		
Common to 1 and 2	0.005	−0.001
Common to 1 and 3	0.085	0.062
Common to 2 and 3	0.023	0.001
Common to 1, 2 and 3	0.069	0.039
Sum	0.369	0.280

Empirical data

- Lau et al. (2015) CLP

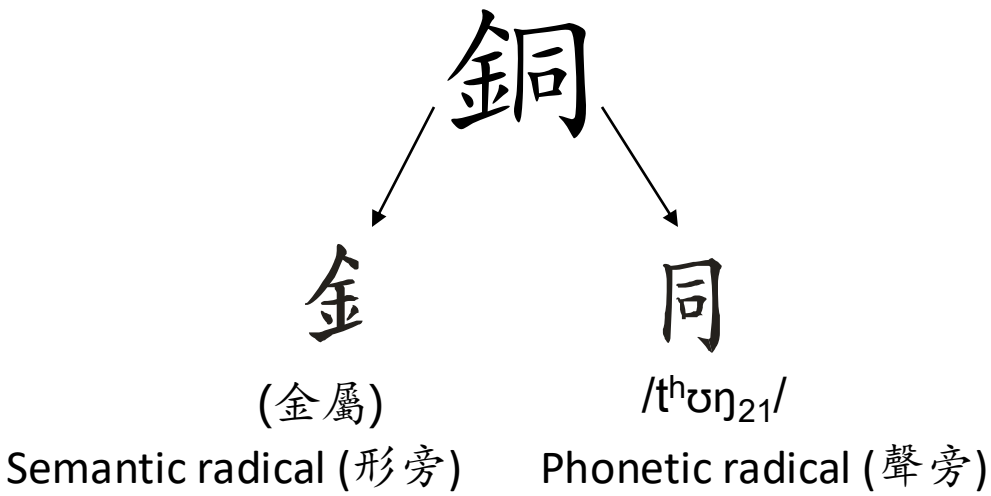
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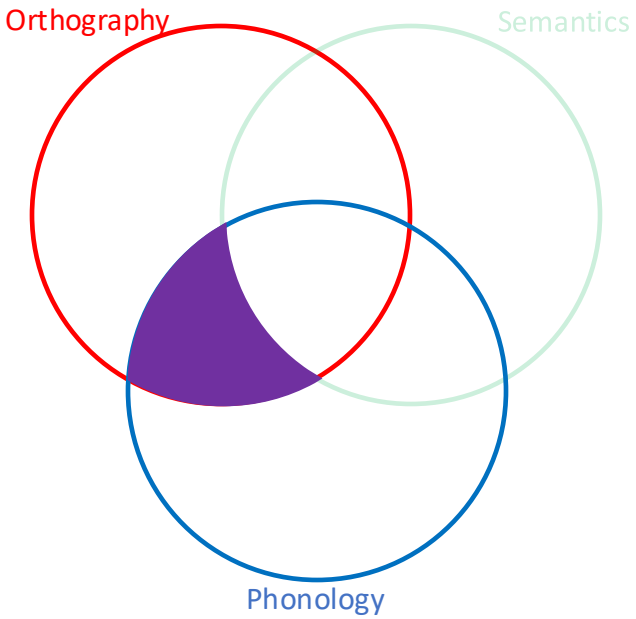
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Phonological awareness – Syllable	0.1	1.86	0.03
Orthographic awareness	0.18	3.75	0.03***
Morphological awareness	0.14	2.74*	0.01*
Pinyin_Real	0.1	1.76	0.01*
Dependent variable: Regular phonetic compounds naming			
Step 1			0.10***
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*$p<0.05$; **$p<0.01$; ***$p<0.001$.

Grapheme-phoneme correspondence (Ortho – Phono)

- Phonetic compound characters 形聲字





- Regularity
  - Regular 清、桐
  - Irregular 倩、洞

Empirical data

Learning to Read Chinese Beyond the Logographic Phase

Connie Suk-Han Ho, Peter Bryant

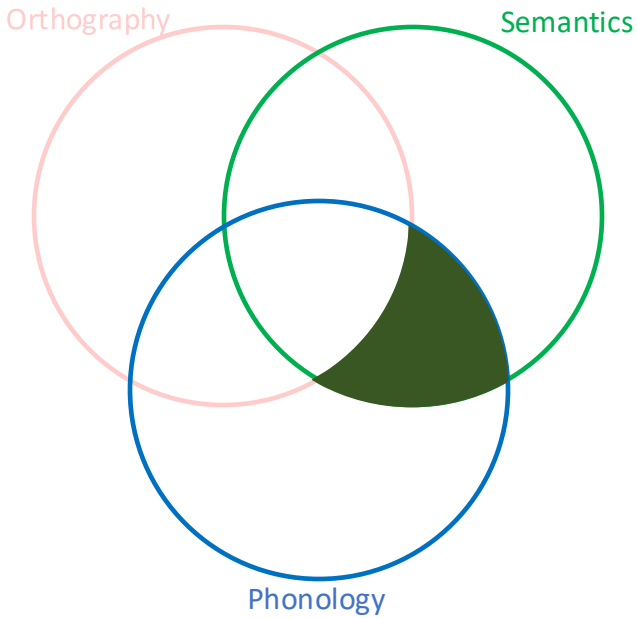
First published: 09 November 2011 | https://doi.org/10.1598/RRQ.32.3.3 | Citations: 154

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ABSTRACTS

This study investigated the role of phonetics for children learning to read Chinese. Participants were 45 Chinese first graders and 45 second graders recruited in Hong Kong. The study revealed that children name phonologically regular Chinese characters more accurately than irregular ones, and phonetic-related errors were the most dominant type in reading Chinese characters and words. There were statistically significant correlations among Chinese pseudocharacter reading, Chinese real character reading, and rhyme detection for the first graders. These findings suggested that Chinese first and second graders do rely on phonetics for sound cues in naming Chinese characters, and phonological awareness seemed to be important in learning these script-sound regularities in Chinese. It therefore appeared that beyond the logographic phase, there was also a phonological phase in learning to read Chinese.

Morphological awareness (Phono – Semantics)



Morphemes

Smallest meaningful units of the language

- E.g. “Unchangeable”
- E.g. “月餅” /jyut6 beng2/ [mooncake]

Words can be classified as…

Monomorphemic words

- e.g. 手、狗

Multi-morphemic words

- e.g. 手錶、耳環、狗公園

Morphology of Chinese

- Inflectional
  - 黃色、藍色、紅色…
  - 我們、你們、他們…
  - Aspect markers
- Derivation
  - 電腦化、羅馬化…
- Compounding
  - 手錶、凍飲…

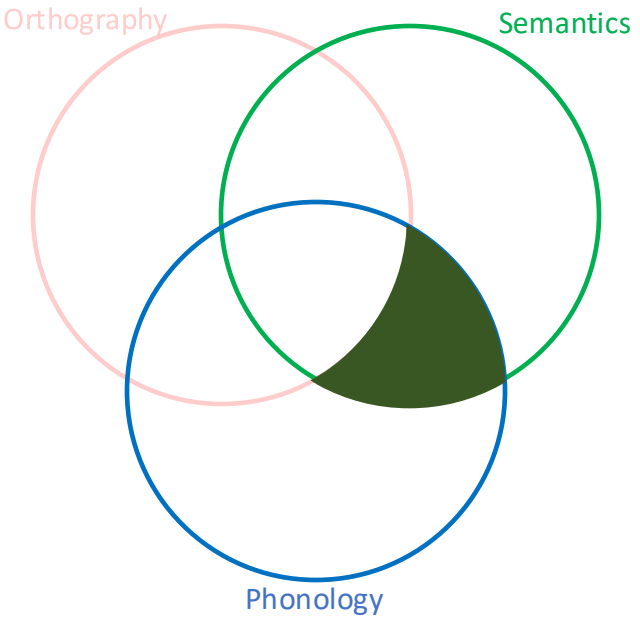
Morphological awareness (Phono – Semantics)

Manipulations of morphemes

- e.g. 龜、速、九十

Structure of words

- 龜 速
- 九十 後



Empirical data

- Yeung et al. (2011) SSR

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Oral vocabulary	−0.03	0.31	−0.01	0.03	0.06	0.02
Phonological awareness	0.04	0.60	0.00	0.22	0.12	0.10
Rapid naming	−1.70	0.24	−0.34***	−0.15	0.05	−0.16**
Orthographic skills	2.63	0.40	0.29***	0.25	0.10	0.15**
Morphological awareness	2.64	0.57	0.25***	0.70	0.12	0.36***

*$p < .05$. **$p < .01$. ***$p < .001$.

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Con't

- Lau et al. (2015) CLP

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[illegible]	[illegible]	[illegible]	[illegible]
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Con't

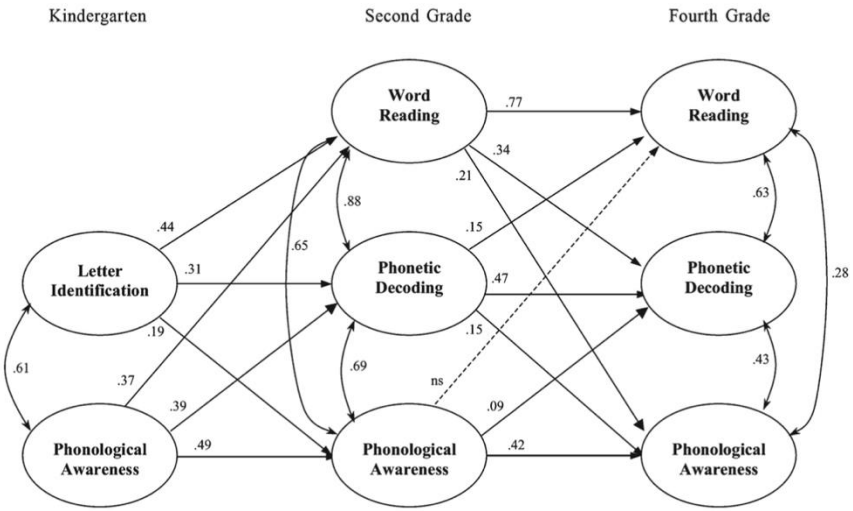
- Tong et al. (2011) JRR

Table 4. Hierarchical regression predicting Chinese word reading across times 1–3, and time 3 Chinese word dictation from all time 1 measures, controlling for time 1 Chinese word reading.

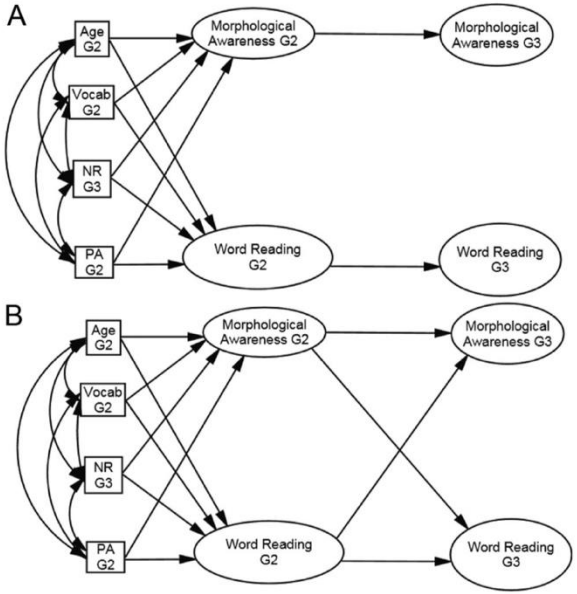
Step and variables	T2 word reading		T3 word reading		T3 word dictation	
	ΔR^2	β	ΔR^2	β	ΔR^2	β
1. T1 controlled variables and word reading	.664***	.786***	.413***	.575***	.297***	.345***
2. T1 morphological construction	.000	−.087	.000	−.060	.001	−.052
3. T1 homophone identification	.014**	.127**	.012†	.125*	.004	.073
4. T1 visual–spatial relationships	.008*	.094†	.015*	.144*	.013†	.130†
5. T1 syllable deletion	.012**	.141**	.006	.099	.010	.130
2. T1 syllable deletion	.013**	.677	.009†	.423	.015†	.312
3. T1 visual–spatial relationships	.002	.680	.008	.430	.007	.319
4. T1 morphological construction	.003	.683	.001	.432	.001	.320
5. T1 homophone identification	.015**	.698	.014*	.446	.005	.325
2. T1 syllable deletion	.013**	.677	.009	.423	.015†	.312
3. T1 visual–spatial relationships	.002	.680	.008†	.430	.007	.319
4. T1 homophone identification	.014**	.693	.013	.444	.004	.323
5. T1 morphological construction	.004	.698	.002	.446	.002	.325
2. T1 syllable deletion	.013**	.677	.009†	.423	.015†	.312
3. T1 morphological construction	.002	.679	.000	.423	.000	.312
4. T1 homophone identification	.013**	.692	.011†	.434	.003	.315
5. T1 visual–spatial relationships	.005†	.698	.012†	.446	.010	.325
R^2	.698		.446		.325	

Note: The capitalised T and its numeral at the end of each variable represent the time in which it was measured.
†$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$.

Reciprocal relationship



Hogan et al. (2005) *Lang Sp Hearing Ser Sch*



Deacon et al. (2013) *Dev Psy*

Implications

- Shall we promote the metalinguistic awareness so that the reading performance will be promoted?
- Shall we directly work on reading instead?
- More like “chicken and egg”…

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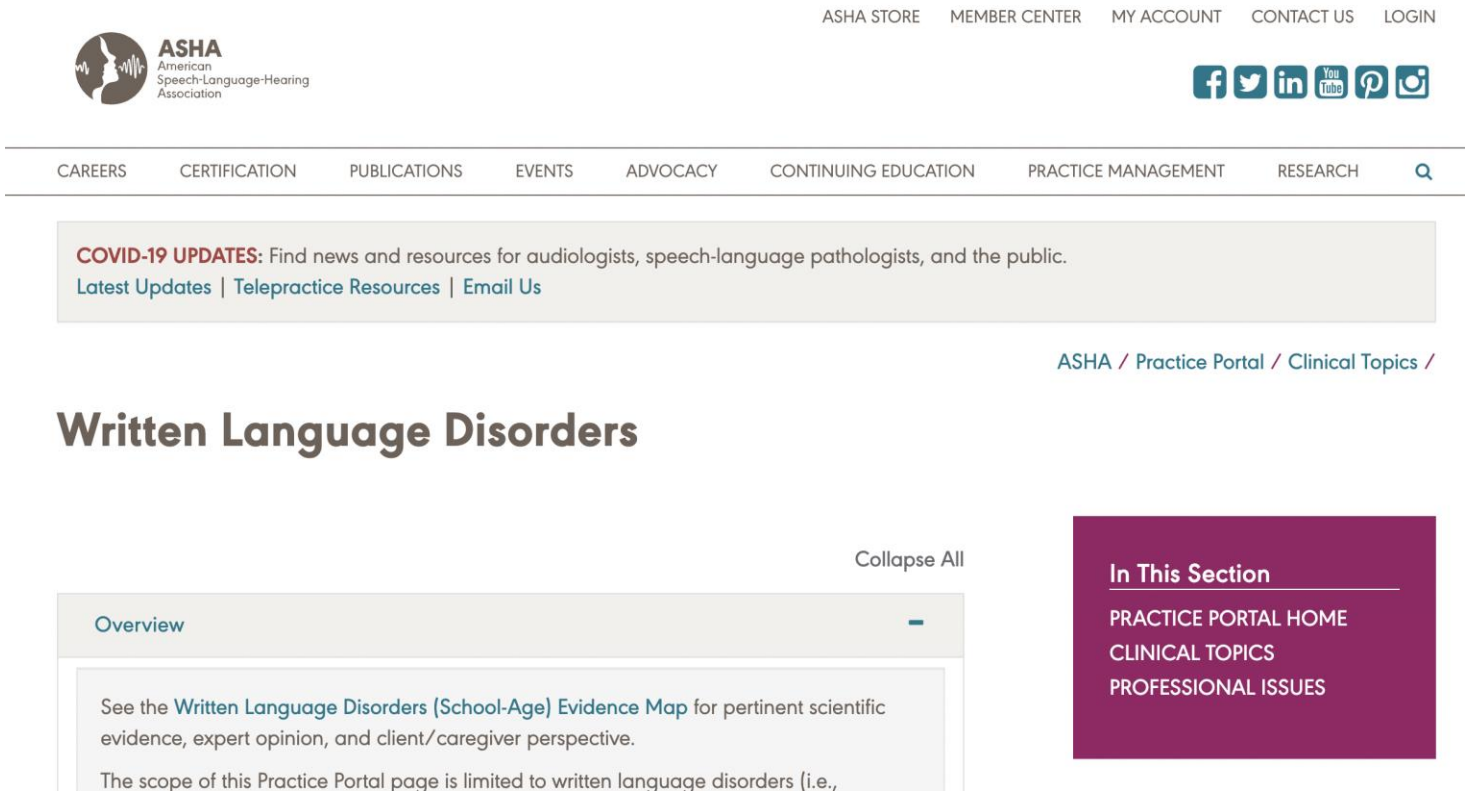
Roles of speech therapists

Comorbidity issues

- Comorbidity rates of 43%-58% of developmental dyslexia and developmental language disorders (Snowling et al., 2019)
- Comorbidity rates of 38% of developmental dyslexia and developmental language disorders in Hong Kong (Chan et al., 2018)

Written language disorders

- ASHA webpage…



Reading difficulties as a “language” problem

THE JOURNAL OF CHILD PSYCHOLOGY AND PSYCHIATRY

Journal of Child Psychology and Psychiatry 53:5 (2012), pp 593–607 doi:10.1111/j.1469-7610.2011.02495.x

Annual Research Review: The nature and classification of reading disorders – a commentary on proposals for DSM-5

Margaret J. Snowling,[1] and Charles Hulme[2]

[1]Department of Psychology, University of York, York, UK; [2]Division of Psychology and Language Sciences, University College, London, UK

This article reviews our understanding of reading disorders in children and relates it to current proposals for their classification in DSM-5. There are two different, commonly occurring, forms of reading disorder in children which arise from different underlying language difficulties. Dyslexia (as defined in DSM-5), or decoding difficulty, refers to children who have difficulty in mastering the relationships between the spelling patterns of words and their pronunciations. These children typically read aloud inaccurately and slowly, and experience additional problems with spelling. Dyslexia appears to arise principally from a weakness in phonological (speech sound) skills, and there is good evidence that it can be ameliorated by systematic phonic teaching combined with phonological awareness training. The other major form of reading difficulty is reading comprehension impairment. These children read aloud accurately and fluently, but have difficulty understanding what they have read. Reading comprehension impairment appears to arise from weaknesses in a range of oral language skills including poor vocabulary knowledge, weak grammatical skills and difficulties in oral language comprehension. We suggest that the omission of reading comprehension impairment from DSM-5 is a serious one that should be remedied. Both dyslexia and reading comprehension impairment are dimensional in nature, and show strong continuities with other disorders of language. We argue that recognizing the continuities between reading and language disorders has important implications for assessment and treatment, and we note that the high rates of comorbidity between reading disorders and other seemingly disparate disorders (including ADHD and motor disorders) raises important challenges for understanding these disorders. **Keywords:** Reading disorders, language disorders, dyslexia, reading comprehension impairment, intervention.

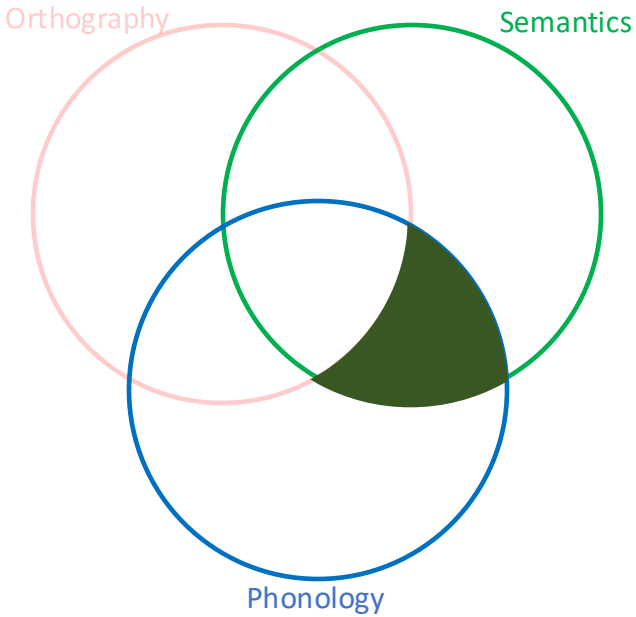
Implications

- Speech therapists play significant role in the management of children with written language disorders
- Similar training goals as typical oral language intervention
  - Learning the items
  - Acquiring the rules behind

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More about morphological awareness

Morphological awareness (MA)



More… morphosyntax

- Compare the following:
  - 「龜速」vs「速龜」
  - 「潮童」vs「童潮」

Morphosyntactic structures

- Basically includes
  - 偏正 (e.g. 飛機、電腦)
  - 聯合 (e.g. 閱讀、朋友)
  - 述賓 (e.g. 出版、彈琴)
  - 述補 (e.g. 推廣、打開)
  - 主謂 (e.g. 民主、人為)

We rely on MA to learn words

- 「調研」 – 調查研究
- 「魔改」 – 過於離譜的二次創作或官方改編
- 「平替」 – 平價替代品
- 「引智」 – 引進國外智力

What if…

「改平」 – 銀色債券
「智調」 – 過於離譜的二次創作或官方改編
「研引」 – 平價替代品
「替魔」 – 引進國外智力



We rely on MA to parse word meanings

- …理实并重地探索重大科学问题的能力…
- …成为全球能耗强度降低最快的国家之一. . . 是全球“增绿”最快最多的国家…
- …資料庫須由人工建置與審核…
- …實現育才、留才…

Implications on clinical practice?

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Application 1: Dynamic assessment

Background

- About 8% of the population are non-Chinese (Census and Statistics Department of HKSAR, 2022)
- One big challenge – unknown if the non-Chinese speaking (NCS) student's poor Chinese due to
  - limited language exposures related to multilingual (and cultural) acquisition, or
  - the comorbidity of language disorders
- Establishing a norm-referenced standardized language assessment for identification purpose is basically impractical
- One possible solution: to use dynamic assessment

Dynamic assessments

- To estimate the modifiability of the children by observing the L2 children's responsiveness to clinicians' feedback to modify their language performances (Guitiérrez-Clellen & Pena, 2001)
- The higher the modifiability, the higher the chance they will acquire the language through simple interactions with adults or even peers of a similar age in schools

A study (Lau & Cheng, 2025)

- Targeting awareness of compounding morphology of Chinese
- Using the test-teach-retest paradigm
  - Pre- and post-teaching assessments
    - Picture naming task – 24 items
  - Teaching phase
    - 24 targeted morphemes x 6 combinations

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	測試題目		
1	畫畫	13	開門
2	的士站	14	病人
3	海鮮	15	八爪魚
4	買菜	16	飛機
5	打電話	17	用電腦
6	食飯	18	手指甲
7	火柴	19	玩玩具
8	坐車	20	消防車
9	飲水	21	電筒
10	文具店	22	去公園
11	讀書	23	雨水
12	水煲	24	拍手

Teaching phase instructions

1. Clinician introduced the name of a picture, (e.g., 垃圾車), and invited the participant to repeat the name.
2. Clinician elaborated the meaning of the compound word by emphasising the target morpheme. (e.g., 垃圾車係用嚟運送垃圾嘅車).
3. Clinician repeated the name of the picture and required the participant to repeat the name again.

Results

Participant	Grade	Gender	Pre-test	Post-test	Post-teaching gain	
1	1	F	1	1	0	✓
2	1	F	8	8	0	✓
3	1	M	1	1	0	✓
4	1	F	5	5	0	✓
5	1	F	4	8	4	✓
6	1	M	6	11	5	✓
7	2	M	12	11	-1	×
8	2	F	7	7	0	✓
9	2	F	9	10	1	✓
10	2	M	13	14	1	✓
11	2	M	13	15	2	✓
12	3	M	10	11	1	✓
13	3	M	10	14	4	✓
14	6	F	18	20	2	✓

Results

$r = .788, p < .001$

Participant	Grade	Gender	Pre-test	Post-test	Post-teaching gain
1	1	F	1	1	0
2	1	F	8	8	0
3	1	M	1	1	0
4	1	F	5	5	0
5	1	F	4	8	4
6	1	M	6	11	5
7	2	M	12	11	-1
8	2	F	7	7	0
9	2	F	9	10	1
10	2	M	13	14	1
11	2	M	13	15	2
12	3	M	10	11	1
13	3	M	10	14	4
14	6	F	18	20	2

Discussion

- Example 1: Students who achieved a positive post-teaching gain

Participant	Grade	Gender	Pre-test	Post-test	Post-teaching gain
1	1	F	1	1	0
2	1	F	8	8	0
3	1	M	1	1	0
4	1	F	5	5	0
5	1	F	4	8	4
6	1	M	6	11	5
7	2	M	12	11	-1
8	2	F	7	7	0
9	2	F	9	10	1
10	2	M	13	14	1
11	2	M	13	15	2
12	3	M	10	11	1
13	3	M	10	14	4
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Discussion

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5	1	F	4	8	4
6	1	M	6	11	5
7	2	M	12	11	-1
8	2	F	7	7	0
9	2	F	9	10	1
10	2	M	13	14	1
11	2	M	13	15	2
12	3	M	10	11	1
13	3	M	10	14	4
14	6	F	18	20	2





Discussion

- Example 2: Students who achieved some marks in the pre-teaching test but zero post-teaching gain

Participant	Grade	Gender	Pre-test	Post-test	Post-teaching gain
1	1	F	1	1	0
2	1	F	8	8	0
3	1	M	1	1	0
4	1	F	5	5	0
5	1	F	4	8	4
6	1	M	6	11	5
7	2	M	12	11	-1
8	2	F	7	7	0
9	2	F	9	10	1
10	2	M	13	14	1
11	2	M	13	15	2
12	3	M	10	11	1
13	3	M	10	14	4
14	6	F	18	20	2



Discussion

- Example 3: Students who scored very low in the pre-teaching test with no post-teaching gain

Participant	Grade	Gender	Pre-test	Post-test	Post-teaching gain
1	1	F	1	1	0
2	1	F	8	8	0
3	1	M	1	1	0
4	1	F	5	5	0
5	1	F	4	8	4
6	1	M	6	11	5
7	2	M	12	11	-1
8	2	F	7	7	0
9	2	F	9	10	1
10	2	M	13	14	1
11	2	M	13	15	2
12	3	M	10	11	1
13	3	M	10	14	4
14	6	F	18	20	2




For details, please refer to…

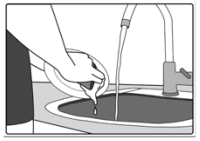
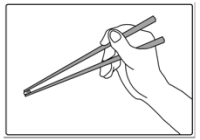
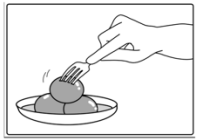
- Lau, D.K.-Y. & Cheng, F.P.-C. (2025). Enhancing inclusive Chinese language education for NCS children in Hong Kong: A dynamic assessment approach for triaging. In Y Liang & Z Li (Eds.), *Diversity and inclusiveness in Chinese as a second language education (pp. 74-90)*. London and New York: Routledge.

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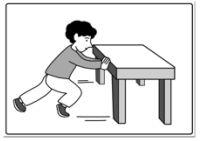


Stay tuned please…






	Target	1	2	3	4	5	6	7	8	9	10
1	切	切番茄	切橙	切蘋果	切西瓜	切士多啤梨	切提子	切蘿蔔	切檸檬	切蛋糕	切香蕉
2	食	食番茄	食橙	食蘋果	食西瓜	食士多啤梨	食提子	食蘿蔔	食檸檬	食蛋糕	食香蕉
3	戴	戴眼鏡	戴手套	戴口罩	戴耳環	戴項鍊	戴戒指	戴手錶	戴帽	戴手鍊	戴手套
4	抹	抹枱	抹鏡子	抹椅子	抹電話	抹地	抹 ipad	抹手	抹水樽	抹叉	抹刀
5	飲	飲水	飲牛奶	飲橙汁	飲汽水	飲豆漿	飲咖啡	飲茶	飲朱古力奶	飲檸檬茶	飲益力多
6	洗	洗番茄	洗橙	洗蘋果	洗西瓜	洗士多啤梨	洗提子	洗手	洗水樽	洗叉	洗刀
7	倒	倒水	倒牛奶	倒橙汁	倒汽水	倒豆漿	倒咖啡	倒茶	倒朱古力奶	倒檸檬茶	倒益力多
8	拍	拍枱	拍椅子	拍波	拍書	拍門	拍手	拍大牌	拍膊頭	拍手臂	拍牆
9	夾	夾番茄	夾橙	夾蘋果	夾西瓜	夾士多啤梨	夾提子	夾蘿蔔	夾檸檬	夾蛋糕	夾香蕉
10	拮	拮番茄	拮橙	拮蘋果	拮西瓜	拮士多啤梨	拮提子	拮蘿蔔	拮檸檬	拮藍莓	拮香蕉
11	推	推門	推椅子	推桌子	推電話	推盒	推波	推玩具車	推水樽	推紙巾	推釘書機
12	著	著衫	著鞋	著襪	著外套	著裙	著褲	著風褸	著泳衣	著校服	著保護衣

Tips for intervention planning

- Intervention goals
  - Tailor-made according to strengths and weaknesses
- Intervention process and contexts
  - Direct vs indirect intervention
  - Students : Clinician ratio
  - Degree of collaborations in the management team
  - Degree of embedding instructions in classrooms / school

Application 2: Treatment

Accelerating Morphological Awareness (AMA)

The measure of “Boundedness”

Free morphemes

- Can standalone as words
- E.g. 車、手、杯、木、腦

Bound morphemes

- Can’t standalone as words
- E.g. 蟑螂、玫瑰、吝嗇、徘徊

Boundedness as a dynamic concept

- Is the morpheme “謙” free or bound?

	小一學生	中一學生
Exposure	謙虛	謙虛、謙讓、謙卑、謙遜
Result	「謙」是黏著	「謙」可以有獨立意思

AMA

- By promoting
  - Non-productive → productive
  - Bound → Free
- To improve word learning abilities

- Some interesting observations
  - 潔 → 清（清潔）
  - 耍樂 → 玩樂（玩耍）
  - 捕 → 魚（捕魚）
  - 兔 → 白（白兔）

In short…

- In a single session, introduce…

  車、馬、白、…

  白馬、馬車、白車、…

- Explicit instructions
- Encourage kids to “create” words and define the word meanings accordingly

Empirical data (Lau & Leung, 2014)

- Effect on Boundedness

	Treatment Group				*Control Group*			
	Bound Morphemes		*Free Morphemes*		*Bound Morphemes*		*Free Morphemes*	
	Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*
Pretreatment (max =36)	3.8	1.9	4.7	2.8	4.0	1.6	4.5	2.2
Posttreatment (max =36)	8.3	4.7	13.9	6.8	4.6	1.9	4.8	2.5

Con't

	Treatment Group				*Control Group*			
	BB Words		*FF Words*		*BB Words*		*FF Words*	
	Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*
Pretreatment (max =18)	5.1	3.4	7.5	3.0	5.0	3.5	7.2	2.9
Posttreatment (max =18)	8.9	5.0	13.0	5.4	6.5	3.9	7.6	3.4

Effect on semantic transparency

- Opaque (e.g. 沙發) vs Transparent words (e.g. 沙灘)

	Treatment Group				*Control Group*			
	Opaq-Words		*Trans-Words*		*Opaq-Words*		*Trans-Words*	
	Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*
Pretreatment (max =24)	8.6	3.8	11.2	5.0	8.5	3.5	10.2	4.5
Posttreatment (max =24)	14.8	5.4	20.1	6.3	9.4	3.7	11.4	4.4

Effect on reading abilities

	Treatment Group		*Control Group*	
	Mean	*SD*	*Mean*	*SD*
Pretreatment (max = 150)	44.8	15.6	48.4	14.6
Posttreatment (max = 150)	61.8	19.8	61.5	20.2



Discussion

- AMA promotes morphological awareness
- Further studies on how improved morphological awareness promotes word learning and reading comprehension needed

- Lau, D.K.Y., & Leung, M.T. (2014). Relationship between morphological awareness and Chinese reading development. In K.K.H. Chung, K.C.P. Yuen, & D.M.McInerney (Eds). *Understanding developmental disorders of auditory processing, language and literacy across languages (pp.229-247)*. N.C.: Information Age Publishing, Inc.

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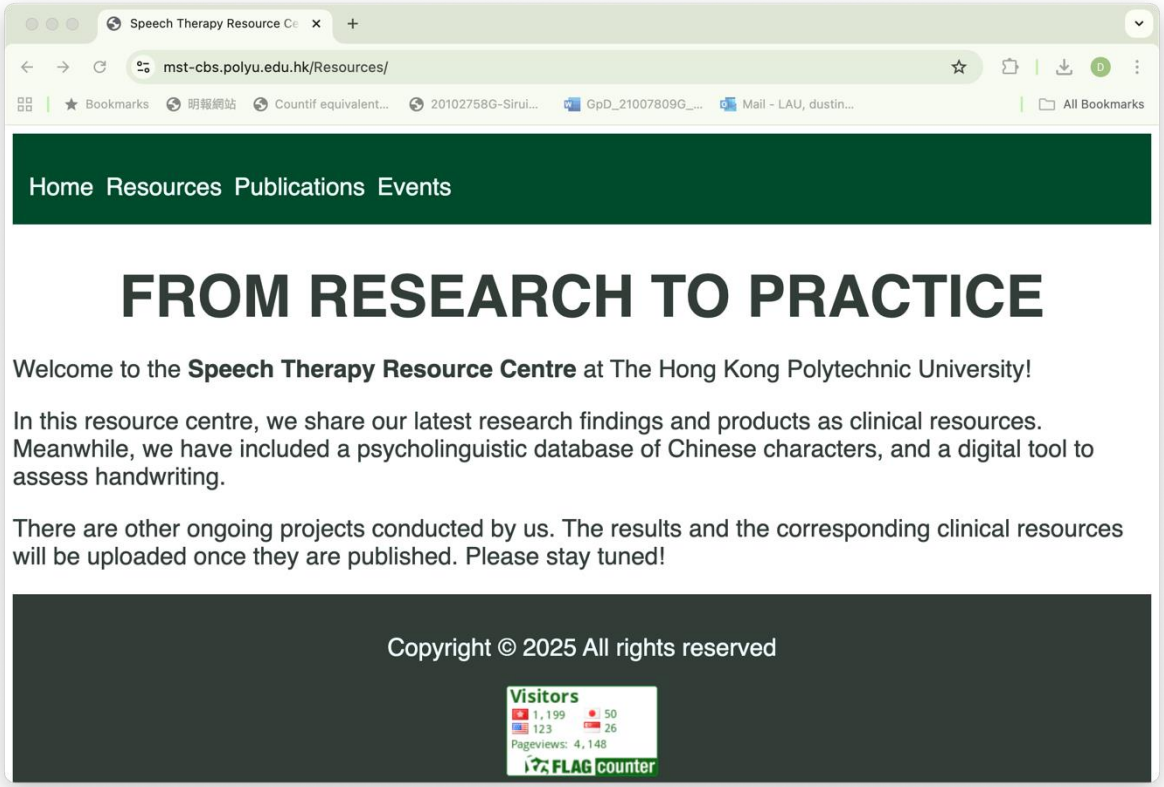


Sample slides…

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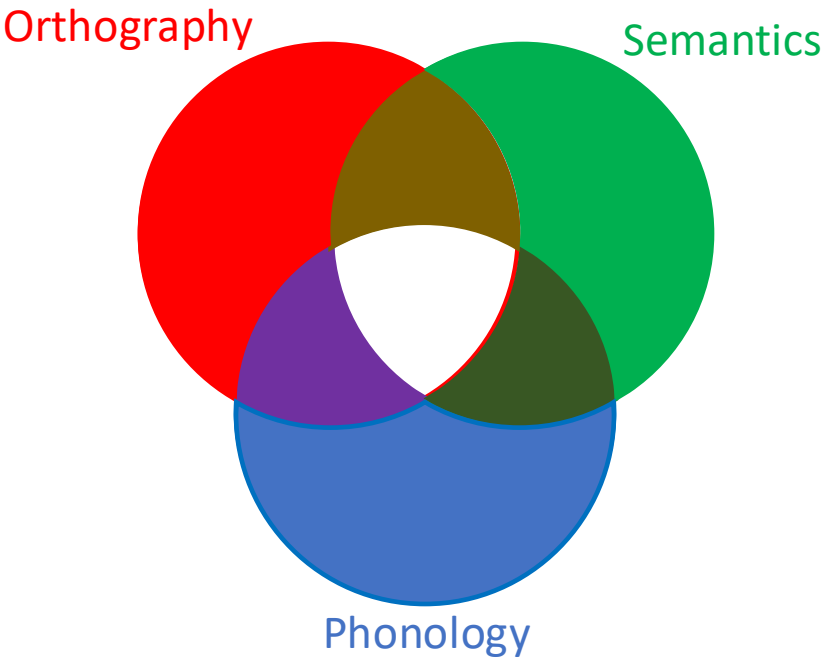
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FROM RESEARCH TO PRACTICE
Welcome to the Speech Therapy Resource Centre at The Hong Kong Polytechnic University!
In this resource centre, we share our latest research findings and products as clinical resources. Meanwhile, we have included a psycholinguistic database of Chinese characters, and a digital tool to assess handwriting.
There are other ongoing projects conducted by us. The results and the corresponding clinical resources will be uploaded once they are published. Please stay tuned!
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Summary

The triangle model as a framework to guide Ax and Tx



Written language disorders

- It’s all about language
- Any concepts applied in oral language assessment and treatment are applicable in written language disorders as well!

References

- Coltheart, M., Rastle, K., Perry, C., Langdon, R., & Ziegler, J. (2001). DRC: a dual route cascaded model of visual word recognition and reading aloud. Psychological review, 108(1), 204.
- Ehri, L. C. (2005). Learning to read words: Theory, findings, and issues. Scientific Studies of reading, 9(2), 167-188.
- Ho, C.S.H. & Bryan, P. (1997). Learning to read Chinese beyond the logographic phase. Reading research quarterly, 32(3), 276-289.
- Kuo, L. J., & Anderson, R. C. (2006). Morphological awareness and learning to read: A cross-language perspective. Educational psychologist, 41(3), 161-180.
- Lau, D. K.-Y., Leung, M. T., Liang, Y., & Lo, C. M. J. (2015). Predicting the naming of regular-, irregular- and non-phonetic compounds in Chinese. Clinical Linguistics & Phonetics, 29(8–10), 776–792. doi:10.3109/02699206.2015.1034379
- Lau, D.K.Y., & Leung, M.-T. (2014). Relationship between morphological awareness and Chinese reading development. In K.K.H. Chung, K.C.P. Yuen, & D.M. McInerney (Eds). Understanding Developmental Disorders of Auditory Processing, Language and Literacy Across Languages: International Perspectives. Information Age Publishing.
- Lui, H.-M., Leung, M.-T., Law, S.-P., & Fung, R. S.-Y. (2010). A database for investigating the logographeme as a basic unit of writing Chinese. International Journal of Speech-Language Pathology, 12(1), 8–18. doi:10.3109/17549500903203082
- McBride-Chang, C., Shu, H., Zhou, A., Wat, C. P., & Wagner, R. K. (2003). Morphological awareness uniquely predicts young children's Chinese character recognition. Journal of educational psychology, 95(4), 743.
- Plante, E. & Gómez, R.L. (2018). Learning Without Trying: The Clinical Relevance of Statistical Learning. Language, Speech and Hearing Services in Schools, 49, 710-722.
- Seidenberg, M. S., & McClelland, J. L. (1989). A distributed, developmental model of word recognition and naming. Psychological review, 96(4), 523.
- Snowling, M.J. & Hulme, C. (2012). Annual Research Review: The nature and classification of reading disorders – a commentary on proposals for DSM-5. Journal of Child Psychology and Psychiatry, 53(5), 593-607.
- Tainturier, M. J. (2019). A theory of bilingual spelling in alphabetic systems. In C. Perret, & T. Olive (Eds). Spelling and Writing Words: Theoretical and methodological advances (pp.67-92). Brill.
- Tong, X., McBride-Chang, C., Wong, A. M. Y., Shu, H., Reitsma, P., Rispens, J. (2011). Longitudinal predictors of very early Chinese literacy acquisition. Journal of Research in Reading, 34(3), 315–332.
- Weekes, B. S., Yin, W., Su, I. F., & Chen, M. J. (2006). The cognitive neuropsychology of reading and writing in Chinese. Language and Linguistics, 7(3), 595–617.
- Wiley, R.W. & Rapp, B. (2021). The Effects of Handwriting Experience on Literacy Learning. Psychological Science, 32(7), 1086-1103.
- Yeung, P.-S., Ho, C. S.-H., Chik, P. P.-M., Lo, L.-Y., Luan, H., Chan, D. W.-O., & Chung, K. K.-H. (2011). Reading and spelling Chinese among beginning readers: What skills make a difference? Scientific Studies of Reading, 15, 285–313. DOI: 10.1080/10888438.2010.482149