

Literacy and Learning Symposium 2017

Interventions for children with dyslexia from different language backgrounds and with additional emotional/behavioural difficulties

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Introduction

- About 1 Billion (UNESCO - 2015) = Unable to read a book or sign their names
- Approximately 25% (60 million) of adults and school-age children in the U.S. have difficulty acquiring reading and spelling skills
- New Zealand (4 to 5 million) ≈ 1 million?



Introduction

- Reading difficulties among minority, inner-city children about 2/3rd
- 25% of adults are unable to read a newspaper
- ≈ 15% drop out of high school and over 75% report difficulties in learning to read



Introduction

- > 70% prison inmates cannot read above 4th grade level
- However, provide literacy help, about 16% chance of returning
- Without help in literacy, 70% chance of returning to prison

Introduction

- (NIH) Illiteracy is a public health issue
- Health care expenses (USA)
- Read at 3rd grade or below: 3 times costs in services (Weiss et al., 2004)
- Illiteracy costs > 1 trillion USD each year (WLF, 2015)

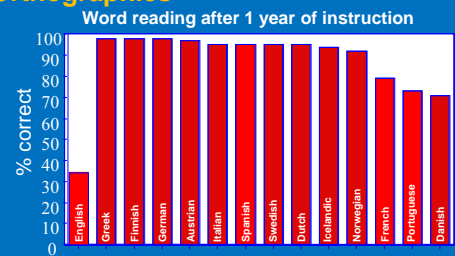
Instruction/Experience

- Ehri (1989): Inadequate instruction spanning limited reading and spelling development and limited phonological awareness is the primary cause of reading disability
- Juel (1988): Children who read poorly at the end of the first grade were likely to remain poor readers at the end of the fourth grade
- Lyon et al. (1993): 74% of reading disabled in the third grade continue to exhibit reading and spelling problems even at the ninth grade level

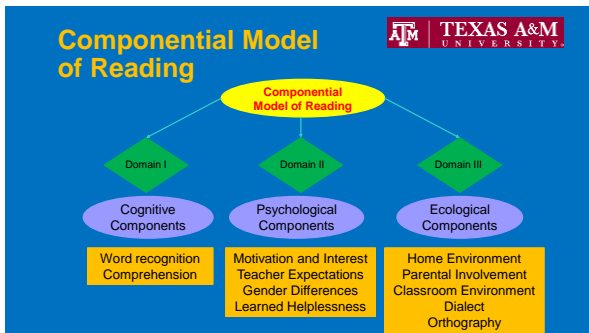
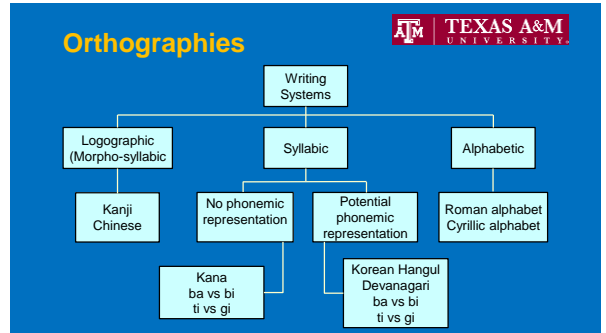
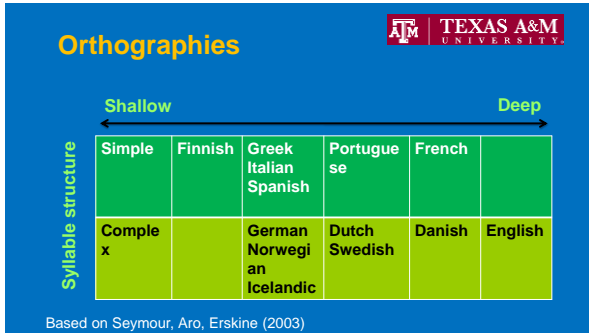
Instruction/Experience

- Oral language Development (Hart & Risley, 1995)
- Number of books available at home (Chiu & McBride-Chang, 2006)
- Parents reading to children (Feitelson, 1964)
- Enjoyment of reading (Chiu & McBride-Chang, 2006)
- Good readers read 4 nights a week – poor readers read one night a week

Orthographies



Seymour, Aro, Erskine (2003), British Journal of Psychology



Reading processes

Three kinds of poor readers:

1. those with decoding deficit only
2. those with comprehension deficit only
3. those with deficits in both decoding and comprehension

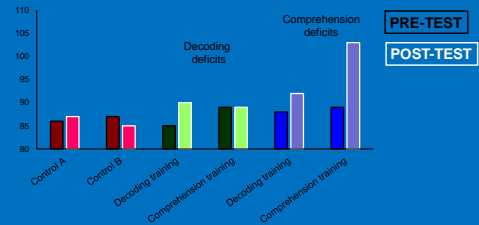
- $R = D \times C$ (Simple View of Reading) (Gough & Tunmer, 1986; Hoover & Gough, 1990; Joshi & Aaron, 2000)

Reading processes

Distribution of different types of reading disabilities (Grades 3, 4, & 6; 198 participants)
 8% = Poor Decoding + Adequate Comprehension
 7% = Adequate Decoding + Poor Comprehension
 8% = Poor Decoding + Poor Comprehension

Aaron & Joshi (1999), *JLD*, 32, 120-137. Aaron, Joshi, et al. (2008). *JLD*, 41, 67-84. Also: Leach et al. (2003); Stothard & Hulme (1994); Oakhill & Bryant (2003)

Reading processes



Reading processes across orthographies

Influence varies with age/grade level

Language	Predictors of Reading Comprehension
English (Tilstra et al., 2009)	D: 4 th grade = 42% / 7 th grade = 13% LC: 4 th grade = 19% / 7 th grade = 35%
French (Megherbi et al., 2006)	D: 1 st grade = 27% / 2 nd grade = 16% LC: 1 st grade = 39% / 2 nd grade = 44%
Norwegian (Hoiem-Tengesdal, 2012)	For 9 year olds, LC explained most variance, with decoding having minimal contribution
Dutch (De Jong & van der Leij, 2002)	After grade 1, LC explained most variability

Reading processes across orthographies

Chinese (Mandarin)

- Grade 2: Character recognition & LC = 25%
- Grade 4: Character recognition & LC = 42%

Character recognition:

➤ Grade 2 = 22% ; Grade 4 = 32%

Listening Comprehension (LC):

➤ Grade 2 = 11%; Grade 4 = 31%

Reading processes across orthographies



Chinese (Cantonese)

- Hong Kong; grades 3-4
- Character Recog. + Fluency & LC = 74%
- Listening Comp. = 70%
- Char. Rec. & Reading Fluency= 42%

Reading processes across orthographies



Hebrew (Joshi et al., 2015):

- 37% (Grade 6) to 70% (Grade 4)
- Decoding (D):
- Grades 2 = 27%; 4 = 26%; 5 = 20%; 6 = 8%
- Listening Comprehension (LC):
- Grades 2 = 17%; 3 = 26%; 9 = 60%

Reading processes across orthographies



Persian (Sadeghi, 2015);

Decoding (D):

- Grades 3 = 24%; 5 = 15%

Listening Comprehension (LC):

- Grades 3 = 12%; 5 = 24%

Reading processes in Multilinguals



Spanish (Joshi et al., 2012):

- Participants: 38 in grade 2 and 42 in grade 3
- (Home language and classroom instruction – Spanish)
- Tests administered: Woodcock-Muñoz Batería III
- Decoding, reading comprehension and listening comprehension
- comparative group of English speaking children in Grades 2-4

Reading processes in Multilinguals



Grade	English	Spanish
2	LC & D = 47%	LC & D = 57%
	LC = 33% & D = 35%	LC = 45% & D = 25%
3	LC & D = 48%	LC & D = 60%
	LC = 37% & D = 35%	LC = 47% & D = 15%
4	LC & D = 50%	

Reading processes in Multilinguals



Punjabi/Hindi (Gautam, 2017):

Decoding (D):

➤ Grades 3 = 26%; 5 = 7%

Listening Comprehension (LC):

➤ Grades 3 = 7%; 5 = 16%

Reading processes in Multilinguals



Context of the Study

AIIR

Reading processes in Multilinguals



Nakamura, Joshi, et al (2014, 2016, 2017)

- N = 556
- Grades 2-5
- Schools from urban 'slum' communities and rural villages
- Bilingual in Primary Literacy (Lit1) Kannada/Telugu; and Secondary Literacy (Lit2) English
- Mother Tongues: Kannada (N= 78); Telugu (N=132); Marathi (N=6); Tamil (N=45); Hindi (N=3); Urdu (N=10)

Reading processes in Multilinguals



Nakamura, Joshi, et al (2014, 2016, 2017)

	Low Elementary			High Elementary		
	B	SE B	β	B	SE B	β
PA	.11	.12	.13	-.11	.10	-.11
Dec	.69	.17	.56***	.68	.14	.53***
LC	.08	.21	.08	.41	.15	.28**
Total RC	R ² = 45%			R ² = 49%		

Note. PA = Phonological Awareness; Dec = Decoding; LC = Language Comprehension; RC = Reading Comprehension; ** $p < .01$; *** $p < .001$

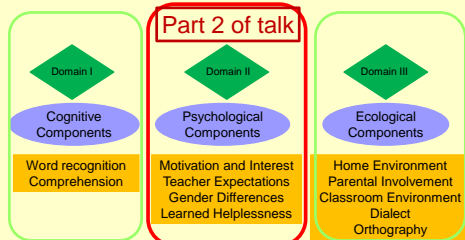
Reading processes in Multilinguals



Nakamura, Joshi, et al (2014, 2016, 2017)

- Approximately 50% of the variance was explained by the two factors
- Decoding in 'akshara' plays a stronger role even at the fifth grade level.
- L2 much better after a threshold (0.6) is reached in L1

Componential Model of Reading

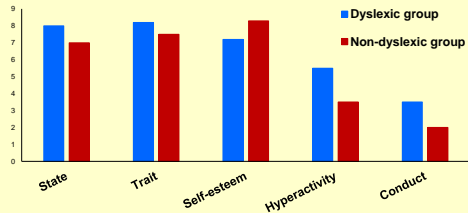


Consequences



- ❖ Literacy learning difficulties can lead to problems across school subjects
- **poor educational qualifications/experiences + reduced job opportunities**
- ❖ Poor school experiences may lead to poor behaviour and negative affect
- **Low levels of self-esteem, increased anxiety, off-task behaviours, anti-social behaviours**

Psychological aspects of literacy learning difficulties



Psychological aspects of literacy learning difficulties



- **Early identification and intervention most successful, but not always possible**
- **Severity of the difficulty – increased problems may require longer to overcome**
- **If range of problems, will also need additional types of support**
- **Background may influence impact (eg, Socio Economic Status or second language user)**

Psychological aspects of literacy learning difficulties



- **Contrasting interventions with groups of students with evidence of literacy learning problems:**
 - **combining interventions: literacy plus psychosocial**
 - **targeting psychosocial factors within the literacy intervention**

Psychological aspects of literacy learning difficulties



- **literacy interventions:**
 - **focus on phonological awareness linked to written text**
 - **phonological and morphological decoding strategies - key words in text**
 - **vocabulary and comprehension**
 - **repetition for fluency and practice**

Psychological aspects of literacy learning difficulties



- Negative behaviour – off-task behaviours
- cognitive-behavioural strategies – strategies for self-regulation of behaviours
- avoid distraction / boredom
- provide opportunities for movement and training in relaxation

Psychological aspects of literacy learning difficulties

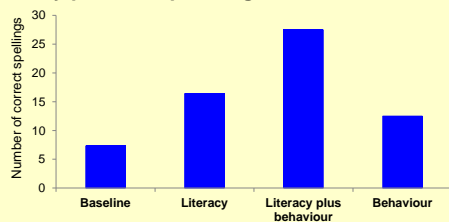


- Emotional upset – anxiety / depression
- ensure experience success
- maintain interest/motivation
- Self-esteem / self-concept – self-worth
- use of age-appropriate material
- build resilience

Psychological aspects of literacy learning difficulties



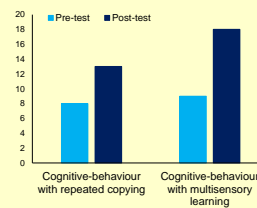
Literacy problems plus negative behaviours



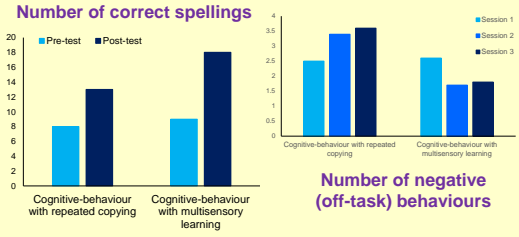
Psychological aspects of literacy learning difficulties



Number of correct spellings



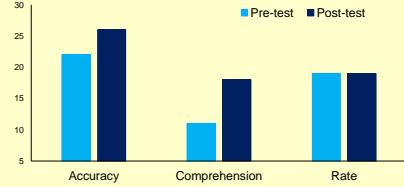
Psychological aspects of literacy learning difficulties



Psychological aspects of literacy learning difficulties



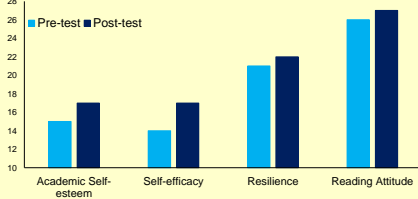
Reading measures



Psychological aspects of literacy learning difficulties



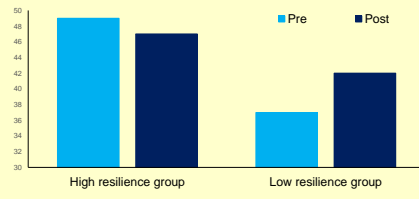
Psychosocial measures



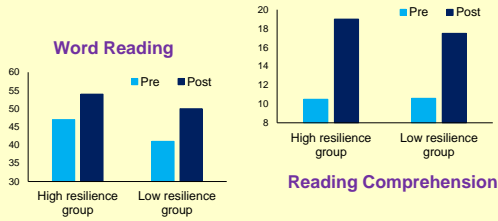
Psychological aspects of literacy learning difficulties



Pre-intervention psychosocial influences



Psychological aspects of literacy learning difficulties

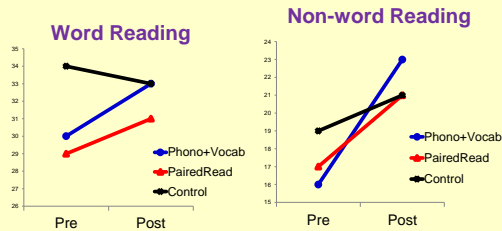


English Additional Language + literacy learning difficulties

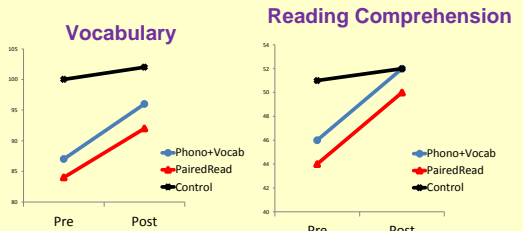


- **Phonological**
 - ❖ saying sounds within words
 - ❖ breaking up words into sounds
 - ❖ changing sounds within words
 - ❖ spelling words via sounds
- **Vocabulary/Morphology**
 - ❖ discussing meaning of word in text
 - ❖ change words/word-parts – new meaning
 - ❖ emphasis on frequent word-parts

English Additional Language + literacy learning difficulties



English Additional Language + literacy learning difficulties



Combined literacy and psychosocial interventions



- **Phonological emphasis linked to literacy most likely to show benefits**
- **Multisensory allows repetition and may also allow targeting of success via skills**
- **May need phased approach to intervention (limited resources)**
- **Also need combined approaches to target different areas of difficulty**

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Concluding comments

- Understanding processes involved in literacy
- Language and orthography
- Influence of learning experience
- Consequences of experience of failure
- Appropriate support – early and follow-up
- Consider whole individual

