

Children's Speech and Literacy Difficulties

A Psycholinguistic Framework for Research and Practice

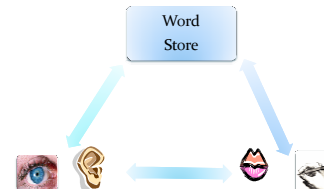
(Summary - Selected Slides)

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Aims of talk

- Introduce a psycholinguistic **way of thinking** about assessment and intervention.
- Summarise **research findings** from Case Studies and Group Studies
- Focus: **speech, phonological awareness and spelling**
- Demonstrate use of the **Speech Processing Profile** from the psycholinguistic framework

Spoken and Written Language



Lexical Representations

- Semantic
- Grammar
- Phonological
- Motor program
- Orthographic
- Orthographic program

Literacy : Reading

- Reading Comprehension
- Reading Aloud
 - Context
 - Single Words: familiar
 - new

Literacy: Writing

Spontaneous writing
Spelling
Copying
Handwriting

Case Presentation: Zoe

Persisting Speech and Literacy Difficulties at CA 5 and CA9

Chapter 10 in:

Stackhouse, J. Wells, B. (1997) *Children's Speech and Literacy Difficulties 1: A Psycholinguistic Framework*. London: Whurr (now Blackwell Wiley).

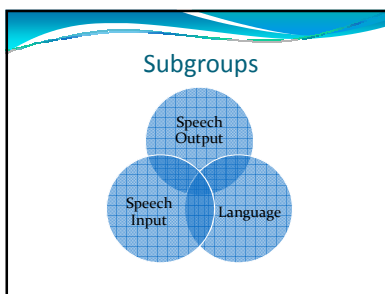
Psycholinguistic assessment detects if **underlying** speech processing difficulties persist even if **'surface'** speech output has improved.

Longitudinal Study

- Used psycholinguistic assessments (speech, language and literacy)
- To compare children with and without speech difficulties
- Over age range 4-7 years.
- Which children at risk for literacy difficulties?
- Which test(s) most sensitive?

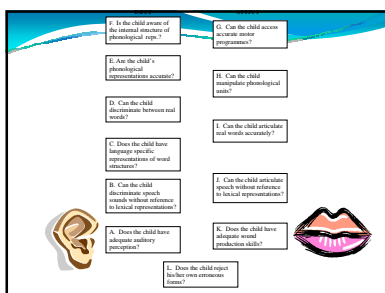
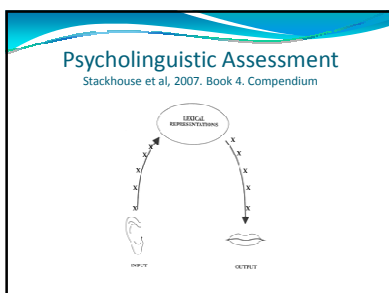
Matched Pairs Design

- Recruited 62 children with primary speech difficulties at 3;06
- Core Group of 47 at CA 4
- Assessed at mean age: 4;07, 5;08, 6;08.
- Each matched to a control child: age, nonverbal IQ, gender, educational background.



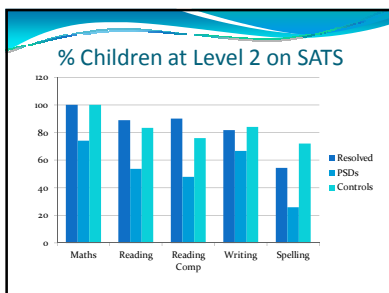
Results of Longitudinal Study

- Children who have **speech AND language problems** more likely to have literacy problems than those who have speech OR language problems.
- Children with speech AND language problems had **more severe speech difficulties plus problems with speech input, phoneme awareness, and letter knowledge.**
- Children with **persisting speech difficulties** are likely to have associated **spelling difficulties.**
- Critical Age Hypothesis** - Children who have not resolved their speech and/or language problems by -CA 5;6 are likely to have associated literacy problems.



Children in the SATS Study - CA:7.0

- 39 children - diagnosis of speech difficulties at CA 4 years
 - Resolved : 11
 - Persisting : 28 (26/28 speech & language difficulties)
- 35 control children matched at preschool on age, nonverbal ability and gender.



Resolved? Case Study: Luke

From Speech Difficulties to Dyslexia.

Nathan, L. Simpson, S. (2001) Designing a literacy programme for a child with a history of speech difficulties. In Stackhouse, J. Wells, B. (2001) *Children's Speech and Literacy Difficulties 2: Identification and Intervention*. London: Whurr

Luke

CA 3;6
Referred to Speech Therapy

CA 4;4

- Obvious speech difficulties
- Language development age appropriate

CA 5

- 'Resolved' speech difficulties - Discharged

Nathan & Simpson 2001, Chapter 8 in Stackhouse & Wells, Book 2

Letter Names and Sounds
Luke CA 4 to 6 years

	Letter Names	Letter Sounds
CA 4;4	-0.86	-0.86
CA 5;5	-0.23	-1.34
CA 6;5	-0.33	-5.56

Luke (6;05) - Spelling from Pictures

Picture	Spelling
Rabbit	RBT
Tiger	Tk
Pig	Bk
Dog	Dk
Gorilla	K
Giraffe	V
Butterfly	Btte
Elephant	Et


Luke CA 6;05

Strengths <small>(Age Appropriate)</small>	Weaknesses
<ul style="list-style-type: none"> Intelligible speech Language Naming Pictures Repeating real words Rhyme Production Letter Names 	<ul style="list-style-type: none"> Auditory Disc - Voicing Repeating Non-words Phoneme Tasks (deletion/completion) Letter Sounds Reading Spelling

Psycholinguistic assessment uncovers 'hidden' early signs of literacy difficulties and identifies strengths and weaknesses.

Three Children - CA 5-6
'Can't say k'

- Speech Assessment - **Describes:**
Produce /k/ as /t/ in initial position
"tar" - car & tar; "tea" - tea & key
Fronting
- Psycholinguistic Assessment
Why?

INPUT Auditory Disc	REPRESENTATIONS Phonological	OUTPUT Articulation
Same/ Different		Repeat
car ~ tar tea~ key	Is it: key tea	K car; key ko; kie

	INPUT Auditory Discrimination	REPRESENTATIONS Phonological	OUTPUT Articulation
1.	✓	✓	X
2.	X	X	✓
3.	✓	X	✓

'Fronting', 'Stopping' are descriptions not explanations.

- Children can make the same speech error for different reasons.
- Speech errors arise from different sources within the same child, e.g. Zoe: voicing (input), fronting (output).

Phonetic /phonological analysis
What to target?
Psycholinguistic Information
Why and How?

The Psycholinguistic Framework

- Combines spoken and written language
- Systematic assessment
- Plan , deliver and evaluate intervention
- Identification: current and predictions
- Training others:
Therapists, Teachers, Assistants,
Students, Parents and Children

The Psycholinguistic Framework for Practice and Research: Book Series

- Book 1 (1997): Presents the profile and 2 models
- Book 2 (2001): Identification and Intervention
- Book 3 (2006): Intervention for Persisting Speech Difficulties
- Book 4 (2007): Compendium of Assessments

(All contain case studies and workshop activities)

Compendium of Auditory and Speech Tasks

Stackhouse, J., Vance, M., Pascoe, M. & Wells, B. (2007)
Children's Speech and Literacy Difficulties Book 4. Chichester: Wiley

1. A Psycholinguistic Approach
2. Development of the Assessment Tasks and Normative Data
3. Auditory Discrimination
4. Auditory Lexical Discrimination
5. Speech Production: Single Words
6. Speech Production: Connected Speech
7. Speech Accuracy, Rate, and Consistency
8. Predicting Persisting Speech Difficulties
9. Assessing Risk Factors through Questionnaires
10. Using Auditory and Speech Tasks in Practice
 - References
 - Appendices
 - CD-Rom : Pictures and Score Sheets

Book 4: Compendium

- 30 auditory and speech tasks
- 4 questionnaire formats
- Use of the task
- Psycholinguistic analysis of the task
- Level on the speech processing profile
- Stimuli - Pictures supplied on CDROM
- Procedure
- Scoring
- Normative data
- Questions to ask
- Summary of Research Findings

References

Snowling, M., Stackhouse, J. (2006) *Dyslexia Speech and Language: A Practitioner's Handbook*. 2nd edn. London: Wiley.

Pascoe, M., Stackhouse, J., Wells, B. (2006) *Persisting Speech Difficulties in Children. Children's Speech and Literacy Difficulties 3*. London: Whurr.

Stackhouse, J., Wells, B. (1997) *Children's Speech and Literacy Difficulties 1: A Psycholinguistic Framework*. London: Whurr.

Stackhouse, J., Wells, B. (2001) *Children's Speech and Literacy Difficulties 2: Identification and Intervention*. London: Whurr.

Stackhouse, J., Vance, M., Pascoe, M., Wells, B. (2007) *A Compendium of Speech and Auditory Tasks. Children's Speech and Literacy Difficulties 4*. Chichester: Wiley.

Williams, L., McLeod, S. and McCauley, R. (eds) (2010) *Treatment of Speech Sound Disorders in Children*. Paul Brookes Publishing Co.

References (German-speaking children)

- Fox, A. (2005) Kindliche Aussprachestörungen... Phonologischer Erwerb - Differenzialdiagnostik - Therapie (2nd ed 2005, reprint 2011).
- Fricke, S. (2007) *Phonological awareness skills in German-speaking preschool children*. Idstein: Schulz-Kirchner.
- Fricke, S., & Schäfer, B. (2008) *Test für Phonologische Bewusstseitsfähigkeiten (TPB) [Test (manual and material)] of phonological awareness skills in German*. Idstein: Schulz-Kirchner. 2nd ed 2011.
- Fricke, S., Szczerbinski, M., Stackhouse, J., & Fox-Boyer, A.V. (2008) Predicting individual differences in early literacy acquisition in German: The role of speech and language skills, and letter knowledge. *Written Language & Literacy*, 11(2), 103-146.
- Schaefer, B., Fricke, S., Szczerbinski, M., Fox-Boyer, A.V., Stackhouse, J., & Wells, B. (2009). Development of a test battery for assessing phonological awareness in German-speaking children. *Clinical Linguistics & Phonetics*, 23(6), 404-430.

Case Studies

LUKE - Dyslexic Teaching Programme
Nathan, L., Simpson, S. (2001) Designing a literacy programme for a child with a history of speech difficulties. In Stackhouse, J., Wells, B. (2001) *Children's Speech and Literacy Difficulties 2: Identification and Intervention*. London: Whurr.

KATY - Therapy on Connected Speech
Pascoe, M., Stackhouse, J., and Wells, B. (2005) Phonological therapy within a psycholinguistic framework: Promoting change in a child with persisting speech difficulties. *International Journal of Language and Communication Disorders*, 40 (2) 189-220.

JARROD - Multiple Intervention Targets
Stackhouse, J., Pascoe, M., and Gardner, H. (2006) Intervention for a child with persisting speech and literacy difficulties: A psycholinguistic approach. *Advances in Speech-Language Pathology*, 8 (3) 231-244.

ZOE - Unfolding Speech and Literacy Difficulties CA 3 - 9 yrs
Stackhouse, J., Wells, B. (1997) *Children's Speech and Literacy Difficulties 1: A Psycholinguistic Framework*. London: Whurr. Chapters 9 & 10

Longitudinal Study References

Nathan, L., Stackhouse, J., Goulandris, N., Snowling, M. (2004) The development of early literacy skills among children with speech difficulties: A test of the critical age hypothesis. *Journal of Speech, Language and Hearing Research*, 47, 377-91.

Nathan, L., Stackhouse, J., Goulandris, N., Snowling, M. (2004) Educational consequences of developmental speech disorder: Key Stage 1 National Curriculum assessment results in English and Mathematics. *British Journal of Educational Psychology*, 74, 173-86 .

Stackhouse, J., Vance, M., Pascoe, M., Wells, B. (2007) *A Compendium of Speech and Auditory Tasks. Children's Speech and Literacy Difficulties 4*. Chichester: Wiley.

