



Introduction

SLI: Early identification

- Specific Language Impairment (SLI) affects 7% of children
- Dyslexia affects 10% of children
- Impact on the individual:
 - Low academic attainment
 - Poor self-esteem
 - Unrewarding relationships
 - Behavioural difficulties
 - Mental health issues
- Cost to society:
 - Providing support during school years
 - Lack of integration/crime
 - Financial support into adulthood
- Importance of early identification widely recognised
- Should there be a programme of national screening?

The GAPS Test

- Computational Grammatical Complexity (CGC) hypothesis proposed to account for patterns of deficits observed in persistent SLI
- 10 minute screening test probing core deficits/risk factors in SLI and Dyslexia
 - Grammar (Syntax and Morphosyntax)
 - Phonology
- Test involves repetition of complex grammatical and phonological constructions predicted to be impaired under CGC

Syntax

The cat is washing herself

Morphosyntax

The cat wanted some milk

Phonology

elements that must be repeated to score correctly

Who?

Any professional or parent can administer the GAPS

Why?

To aid early identification of language impaired or dyslexia at-risk children

What constitutes validation?

- Tests should test what they claim to test as they may have an impact on the lives of individuals and families
- Validation:
 - Use over time
 - Comparison to performance on other tests which claim to test the same abilities

Aims

- Is the GAPS sensitive and specific in identifying children with SLI and/or at risk of Dyslexia?
- Do children already diagnosed with SLI fail the GAPS?

Experiment

Comparison Tests

Grammar
Phonology
Reading
General



- Recalling Sentences (RS)
 - Clinical Evaluation of Language Fundamentals (CELF) Pre-school 2
- Verb Agreement and Tense Test (VATT)
- Test of Active and Passive Sentences - revised (TAPS-R)
- GAPS test – Sentence Repetition
- Children's Test of Non-word Repetition (CNRRep)
- GAPS test – Nonword Repetition
- Basic Reading
 - Weschler Objective Reading Dimensions (WORD)
- Test for the Reception of Grammar (TROG) 2nd edition
- British Picture Vocabulary Scales (BPVS) 2nd edition

Hypotheses

1. Subtests of GAPS will correlate most strongly with tests tapping similar language components

- Correlations with related abilities e.g. correlations between phonology and reading
- Weaker correlations between GAPS and general tests
- Correlations between GAPS and tests tapping known areas of grammatical weakness in SLI: VATT and TAPS

2. Children with SLI will fail one or both subtests of the GAPS

Method

- Participants tested in a quiet room at school or in clinic
- Assessments separated into two sets, administered in separate testing sessions
- Half of each experimental group administered set A first, half administered set B first

Participants

- Recruited through language resource for children with SLI and from mainstream school
- SLI compared to controls, and a group identified by class teachers as at the School Action (SA) stage of SEN Code of Practice

	Controls	SA	SLI
N	30	30	21
Age range (y;m)	3;7 – 6;8	3;10 – 6;5	3;11 – 8;11
Mean age (y;m)	5;5	5;4	6;5
Girls;boys	18:12	11:19	10:11

Results

Does the GAPS identify children with language difficulties in comparison to longer standardised tests?

Table showing partial correlations for whole group raw scores on assessment battery

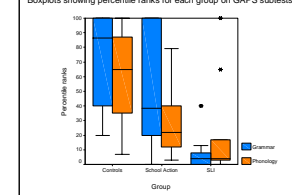
	RS	VATT	TAPS-R	GAPS Grammar	CNRRep	GAPS Phono'	WORD	TROG	BPVS
RS									
VATT	0.64								
TAPS-R	0.5	0.21							
GAPS Grammar	0.83	0.49	0.48						
CNRRep	0.62	0.35	0.37	0.64					
GAPS Phono'	0.65	0.46	0.41	0.78	0.68				
WORD	0.59	0.48	0.21	0.47	0.47	0.42			
TROG	0.62	0.57	0.43	0.6	0.41	0.46	0.46		
BPVS	0.62	0.43	0.46	0.58	0.5	0.59	0.5	0.43	

Significant at $p < 0.01$

Correlations between GAPS subtests and most similar standardised assessments

Do children with SLI fail the GAPS?

Boxplots showing percentile ranks for each group on GAPS subtests



- 20/21 children with SLI performed below the level expected for their age on the GAPS
- 9 children within the age range specified for the GAPS failed both subtests at or below the level of the lowest 10 percent
- Median percentile rank scores on both subtests were below that of comparison groups

Discussion

- The GAPS identified 20/21 children with SLI
- The GAPS identified among controls:
 - No false positives at the 10th percentile
 - One false positive at the 15th percentile

- The results reveal that the GAPS shows:
 - High sensitivity
 - High specificity

- This means that the GAPS potentially provides a feasible and accurate national screening test for children at risk of
 - SLI
 - Dyslexia

- Further validation by independent groups is warranted

