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Assessing text experience in British primary school children: New validated Title and Author Recognition Tests

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Economic
and Social
Research Council



Text experience & reading outcomes

- Variation in text experience **begins prior to literacy onset**
 - Shared reading predicts ~12% of variation in preschoolers' *oral language* & ~8% of differences in *language and reading performance*
- This relationship also **applies to independent reading**
 - Moderate to strong correlations between text experience and reading skills up to age of 21
- This relationship is **reciprocal**
 - The Matthew Effect

Title and author recognition tests

- Frequent readers will have encountered more books and authors, and thus will recognise more items
- **Objective** measures of text experience
- **Sensitive to time & place** so require **frequent updating**
- No test adequately captures the reading experience of British children **today**



Design & validate new ART and TRT tests for
British primary school children

Test development & validation approach

STAGE 1

Cohort 1 + large pool of items



Item validation



Keep items that...

- **vary** in difficulty
- **discriminate** between pupils with different text experience
- measure the **same construct**

STAGE 2

Cohort 2 + Item from Stage 1



Test reliability



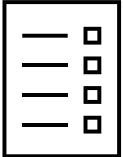
Examine relationship between TRT & ART performance and...

- **reading** skills
- **spelling** skills
- **age**

Stage 1: Testing



- **123 Key Stage 2 pupils**
 - Ages 7–12; $M = 9$ yrs, $SD = 1.18$ yrs
- **100 titles / authors in each of TRT and ART**
 - Taken from CYP-LEX & Renaissance reports 2021–2023
 - Titles adapted for TV / film excluded
- **30 foils in each of TRT and ART**
 - Previous tests, random pairings of first & last names, changing one word in an existing title
- Foil selection: 1–2%



Stage 1: Item validation

Items vary in difficulty

Mean Item Recognition Rate

Item-Rest Correlation

Stage 1: Item validation

Items vary in difficulty

Mean Item Recognition Rate	Item-Rest Correlation
Recognised by 23-77% of pupils → “Easy” item	→ retained if $\text{IRC} \geq 0.2$

Stage 1: Item validation

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Stage 1: Item validation

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Items are discriminative

Stage 1: Item validation

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Items are discriminative

Item Response Theory

Stage 1: Item validation

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Items are discriminative

Item Response Theory	
Item difficulty	Item discrimination

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Items are discriminative

Item Response Theory	
Item difficulty	Item discrimination

Items measure the same construct

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Item Response Theory	
Item difficulty	
	Item discrimination

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Test reliability (internal consistency)

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Items are discriminative

Item Response Theory	
Item difficulty	
	Item discrimination

Items measure the same construct

Test reliability (internal consistency)	
Cronbach's alpha	
	McDonald's omega

Stage 1: Item validation

Items vary in difficulty

Items are discriminative

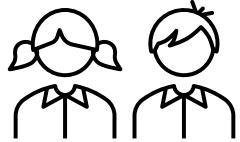
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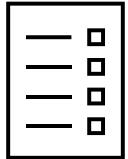
TRT: 50 items + 30 foils (80 in total)

ART: 47 items + 30 foils (77 in total)

Stage 2: Testing



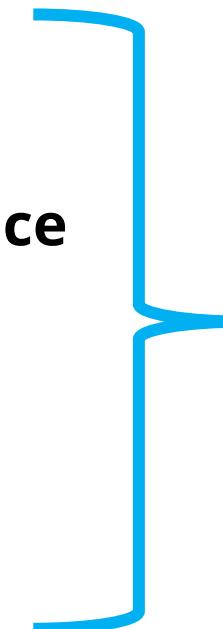
- **130 Key Stage 2 pupils**
 - Ages 7–11; $M = 9$ yrs, $SD = 1.14$ yrs



- **TRT and ART from Stage 1**
- **Single Word Reading: ROAR-LDT**
 - 42 words & 42 nonwords
- **Sentence Reading Efficiency: ROAR-Sentence**
 - True or False?

*"You can read stories in school"
"An apple is blue"*

- 3min to complete (130 sent-s max)

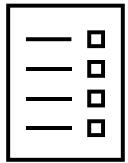


Adapted for UK

Stage 2: Testing



- **130 Key Stage 2 pupils**
- Ages 7–11; $M = 9$ yrs, $SD = 1.14$ yrs



- **TRT and ART from Stage 1**
- **Single Word Reading: ROAR-LDT**
- **Sentence Reading Efficiency: ROAR-Sentence**
- **Spelling test**
 - 20 items from Spelling Frame



[ˈsəʊl.dʒər]

“Tim’s great grandfather was a
soldier in the second world war”

[ˈsəʊl.dʒər]

soldier

soldjer

soldger

solger

Stage 2: Test reliability

Test reliability (internal consistency)	
Cronbach's alpha	McDonald's omega
	
<p>> 0.87 for TRT & ART > 0.83 for ROAR-LDT 0.96 for ROAR-Sentence > 0.74 for Spelling</p>	

Stage 2: Relationships between tasks

		TRT	ART	ROAR-LDT	ROAR-Sentence
ART				Accuracy	RT
ROAR-LDT	Accuracy	.30	.45		
	RT	-.17	-.29		
ROAR-Sentence		.47	.58	.72	-.45
Spelling		.32	.49	.64	-.39 .62

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Children who recognised more titles were more accurate at recognising words and nonwords, more efficient at reading sentences, and better spellers

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Children who recognised more authors were more accurate and faster at recognising words and nonwords, more efficient at reading sentences, and better spellers

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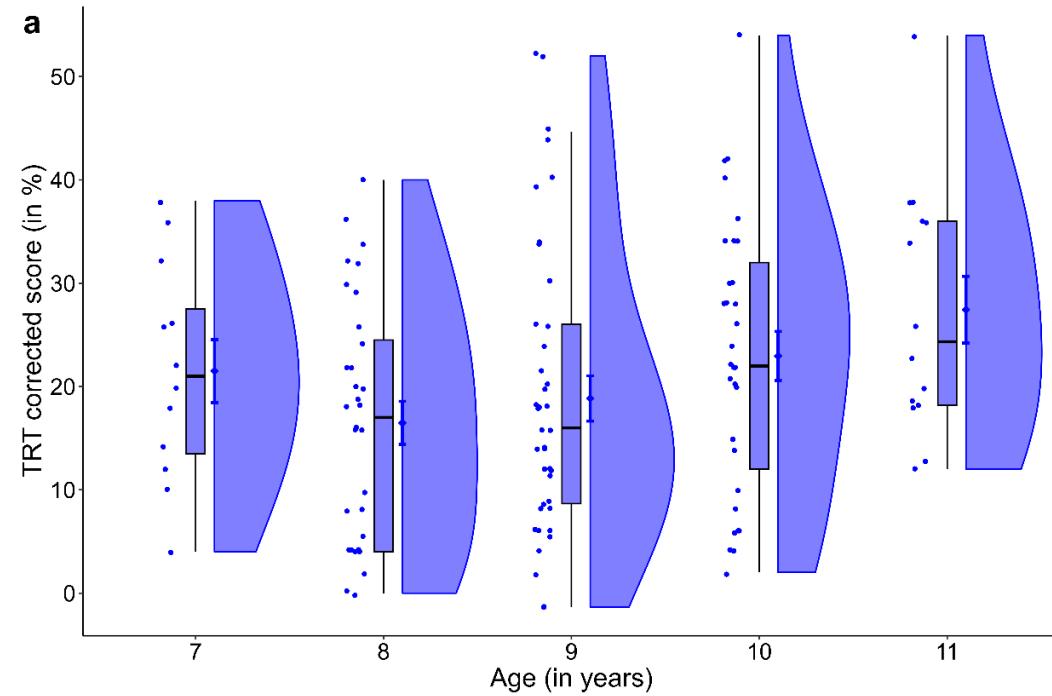
Those who recognised more authors also recognised more titles

Stage 2: Relationships between tasks

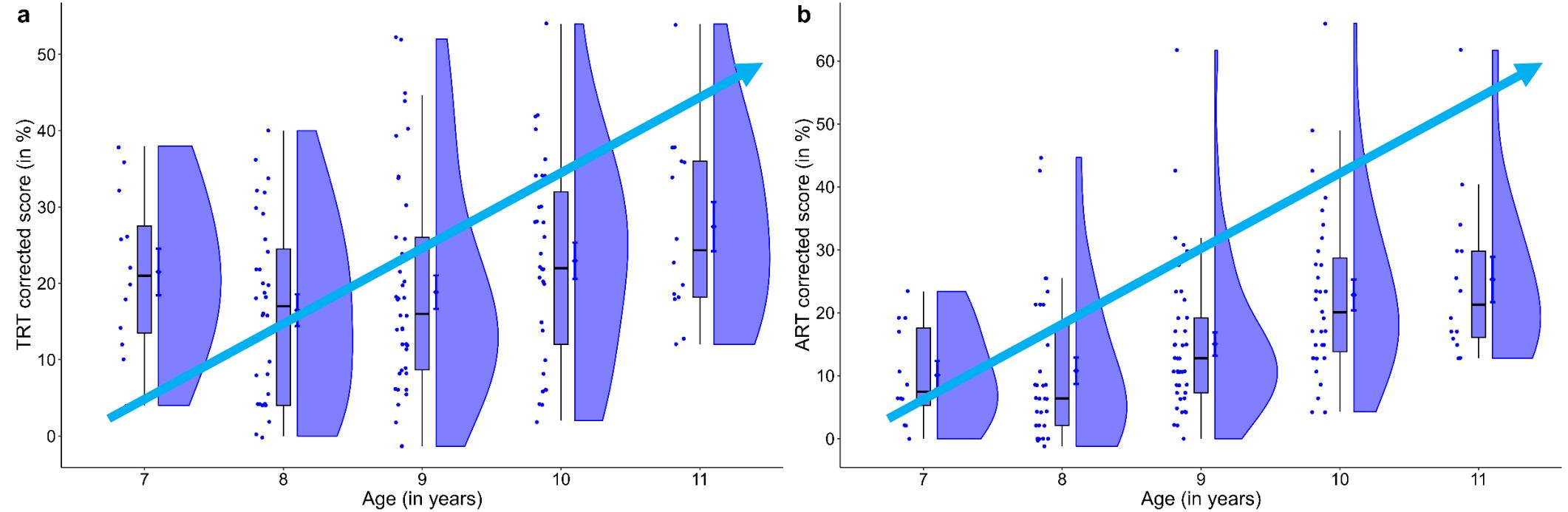
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Better spellers knew more authors & titles, recognised words and nonwords more accurately and faster, and were more efficient sentence readers

Stage 2: Relationship with age

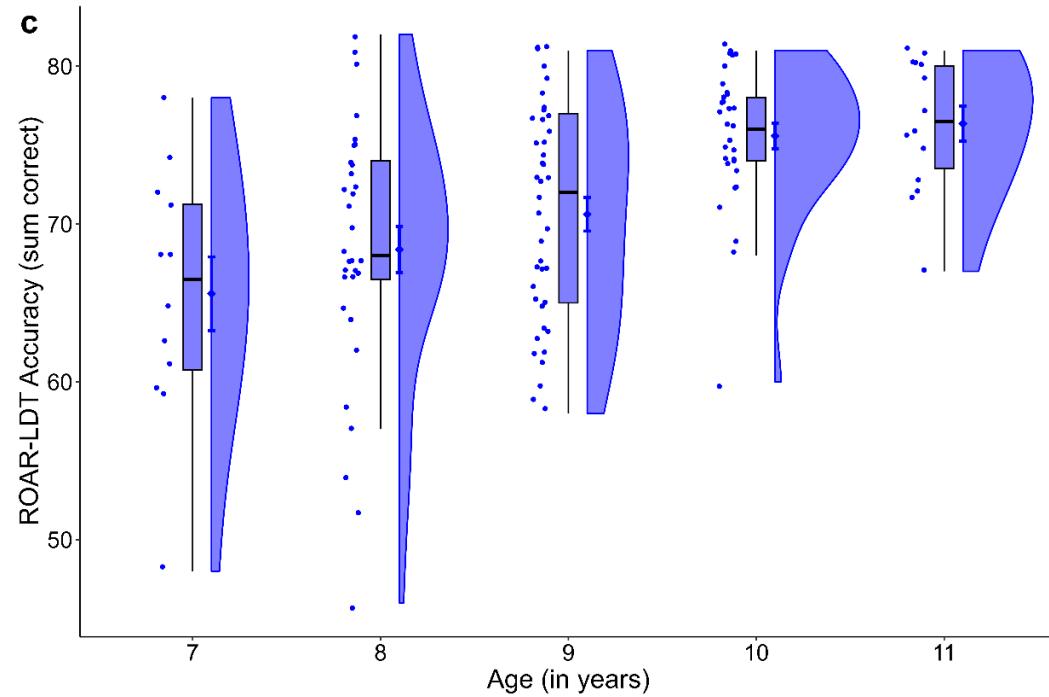


Stage 2: Relationship with age

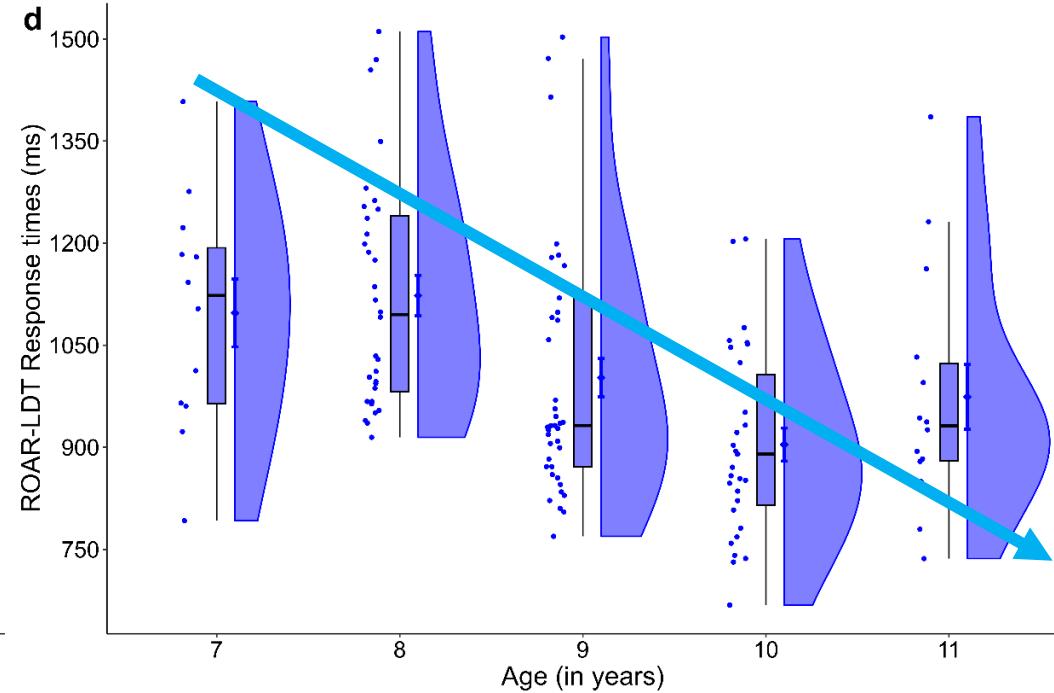
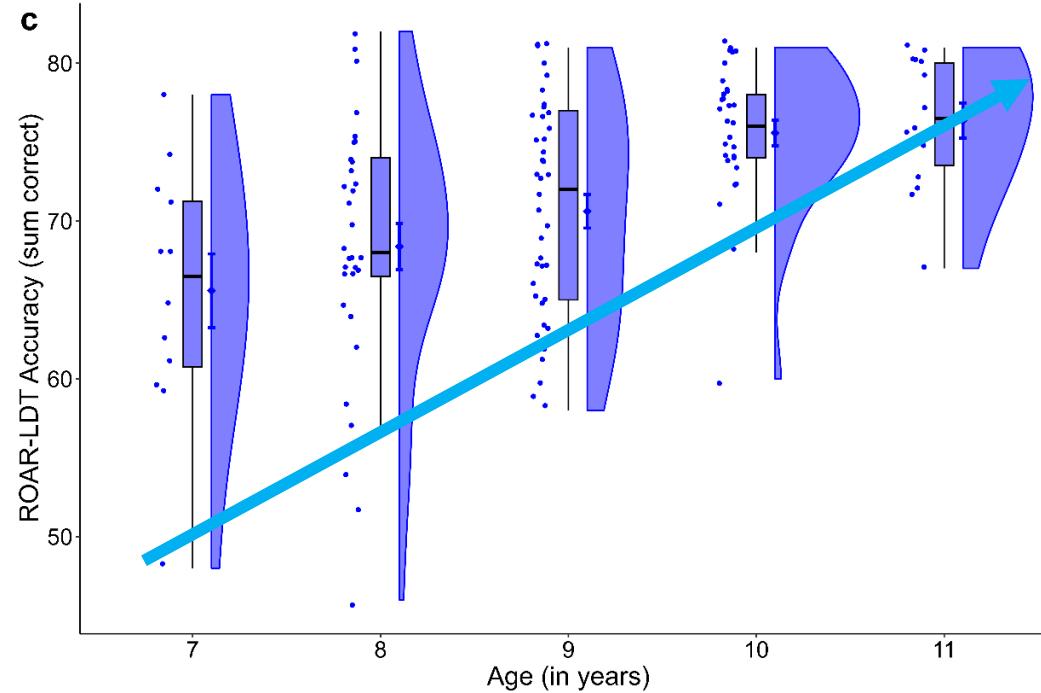


Older children performed better on both ART & TRT

Stage 2: Relationship with age

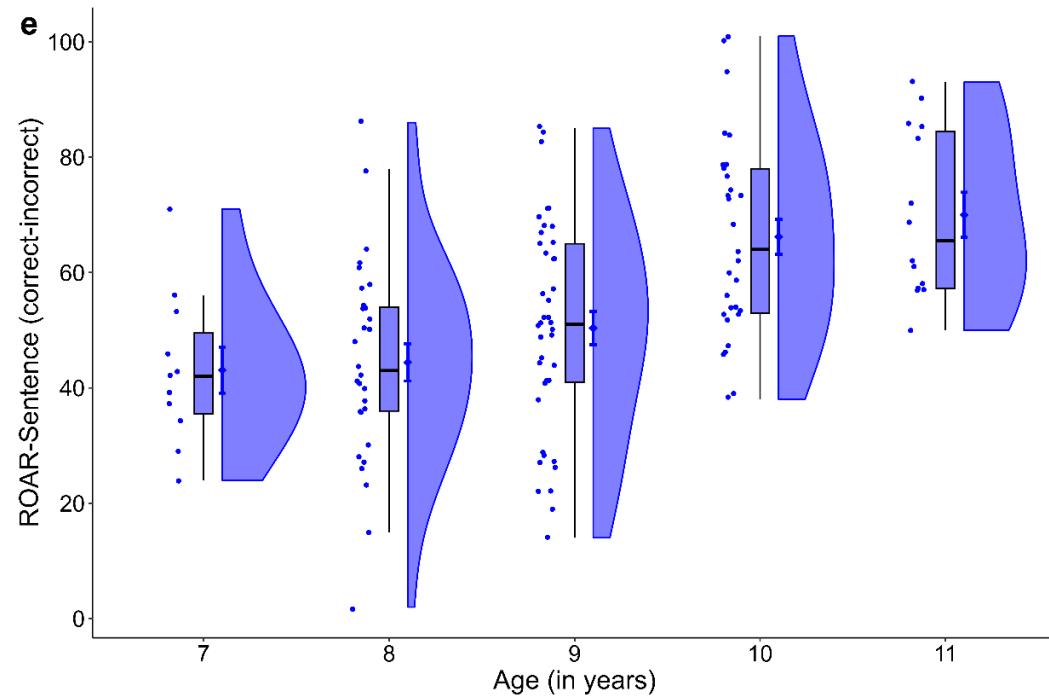


Stage 2: Relationship with age

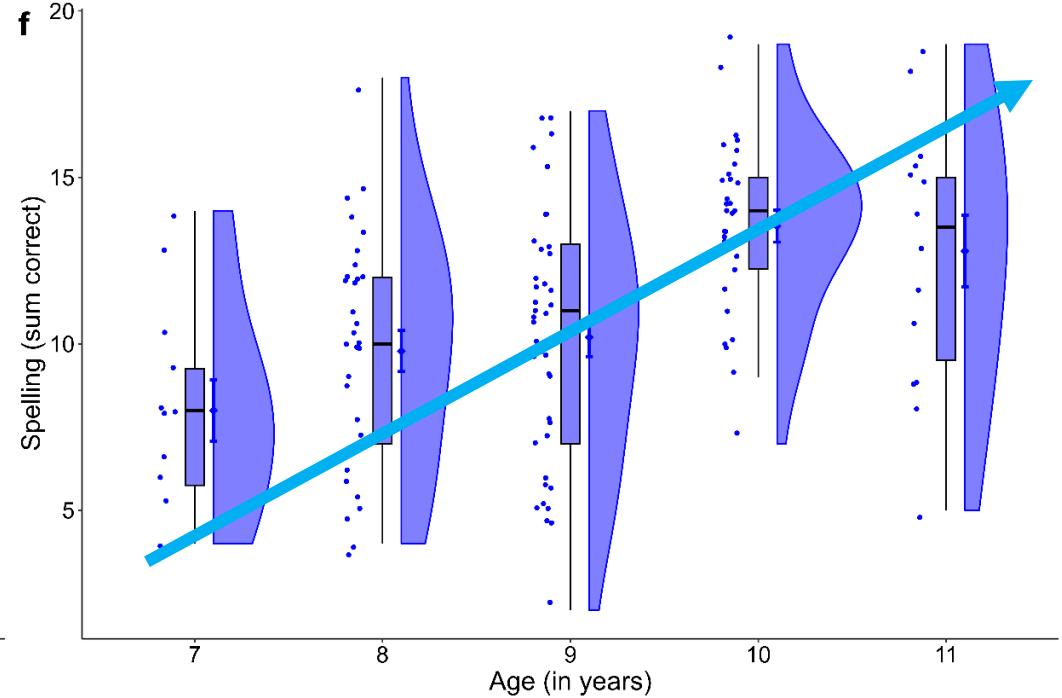
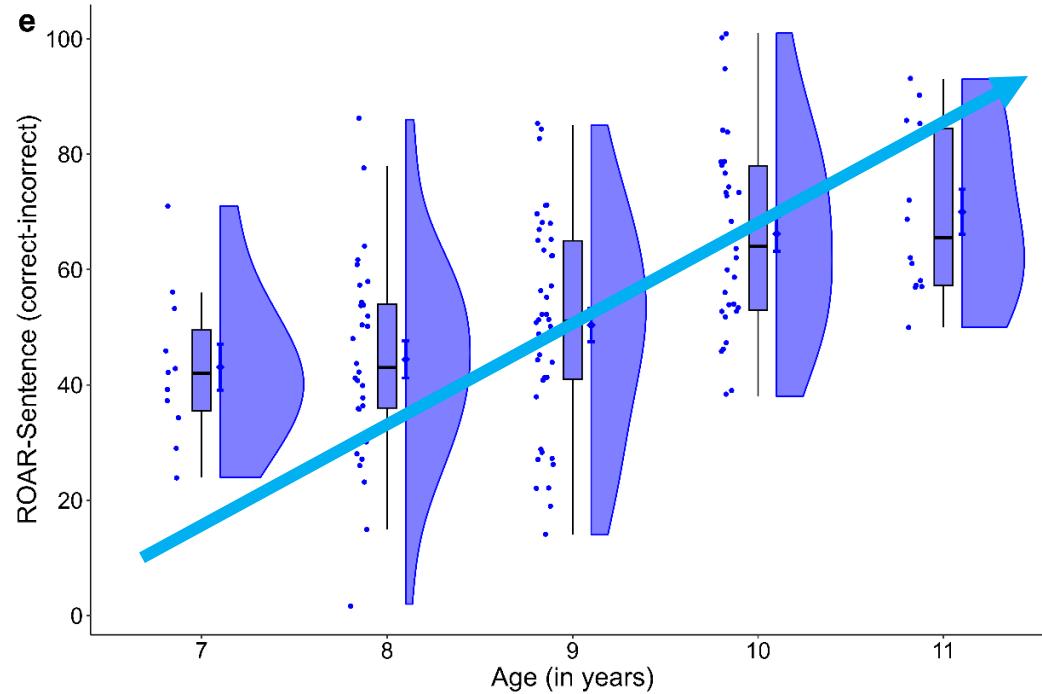


*Older children were more accurate and faster at
recognising words and nonwords*

Stage 2: Relationship with age



Stage 2: Relationship with age



Older children were more efficient sentence readers and better spellers

Summary

130 pupils

TRT: 50 items, 30 foils

ART: 47 items, 30 foils



All tests showed high reliability



- ART/TRT performance correlated positively with reading and spelling skills
- ART showed stronger correlations with other tasks than did TRT
- Older children performed better on all tasks

Conclusions

- **New validated TRT and ART tests for primary school children**
 - Discriminate readers at different points on the text experience spectrum
 - Internally consistent (each measures a single underlying construct)
- **ART may be a more sensitive measure of text experience**
 - Showed stronger association with reading & spelling ability
 - Due to current reading habits?
- **New easy-to-administer online spelling test**
- **ROAR tests adapted to the UK context**

Pre-print & materials publicly available!

**Assessing text experience in British primary school children: New validated title and author
recognition tests**

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Pre-print at: https://doi.org/10.31234/osf.io/r2ybv_v2
Materials at: <https://osf.io/gmv72>



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Thank you!

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