

The reading and vocabulary project (RAV):

How do reading ability and reading practice influence vocabulary knowledge?

Dr. Sanne van der Kleij

# Reading and vocabulary project – Longitudinal study



School entry  
(age 4)



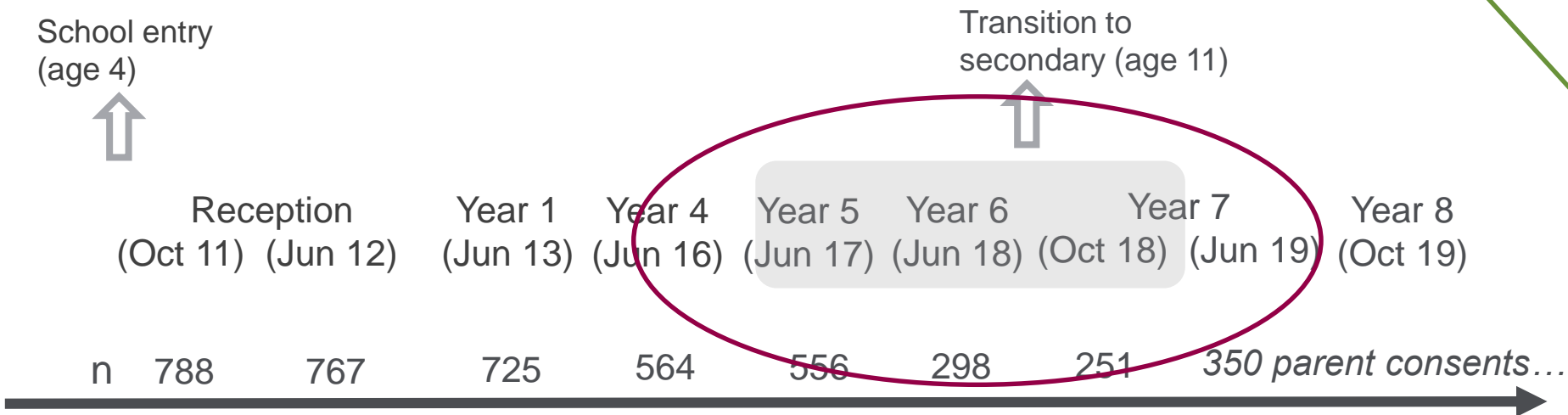
Transition to  
secondary (age 11)



Reception (Oct 11) (Jun 12)    Year 1 (Jun 13)    Year 4 (Jun 16)    Year 5 (Jun 17)    Year 6 (Jun 18)    **Year 7 (Oct 18) (Jun 19)**    Year 8 (Oct 19)

n    788    767    725    564    556    298    251    350 parent consents...

# Reading and vocabulary project – Longitudinal study



# Reading and Vocabulary



- ▶ Vocabulary is crucial for accessing the school curriculum (OUP report, 2018; [oxford.ly/wordgap](https://www.oxford.ly/wordgap))
- ▶ Can teach some words directly, but not all
  - ▶ → Pupils need to learn words independently
- ▶ Reading provides opportunity to acquire vocabulary

A screenshot of a BBC News article. The top navigation bar includes 'BBC', 'Your account', and various news categories like 'News', 'Sport', 'Weather', 'iPlayer', 'TV', and 'Radio'. Below this is a red banner with the word 'NEWS' in white. Underneath the banner are several sub-navigation links: 'Home', 'UK', 'World', 'Business', 'Politics', 'Tech', 'Science', 'Health', and 'Family &amp; Education'. The 'Family &amp; Education' link is highlighted. Below the navigation is the article title 'Narrow vocabulary 'hits pupils' grades' in bold black text. The author's name 'By Hannah Richardson' and her title 'BBC News education reporter' are listed below the title. At the bottom of the article preview, it says '8 hours ago' and there are social media sharing icons for Facebook, Twitter, LinkedIn, Email, and a general 'Share' button.



# Reading and vocabulary development



# Reading and vocabulary development



# Aims of the RAV project



- **1.** Measure the influences of SES and secondary school transition on growth in reading and vocabulary
- **2.** Test the relationship between reading ability, reading practice and vocabulary knowledge
- **3.** Experimentally test the influence of independent reading on vocabulary acquisition

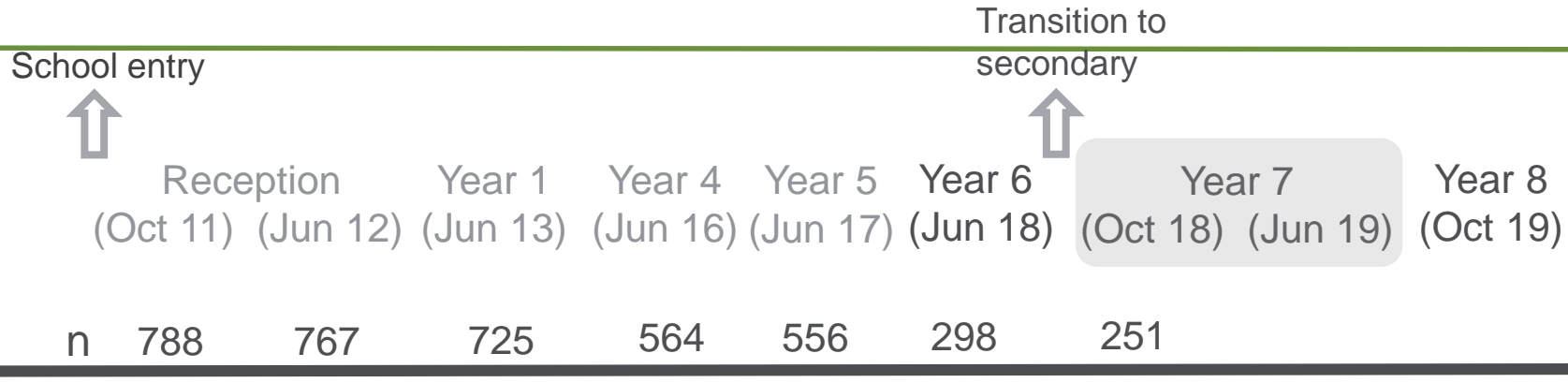
# Aims of the RAV project



- **1. Measure the influences of SES and secondary school transition on growth in reading and vocabulary**
- **2. Test the relationship between reading ability, reading practice and vocabulary knowledge**
- **3. Experimentally test the influence of independent reading on vocabulary acquisition**



# Longitudinal measures



Word reading accuracy and efficiency

Reading Comprehension

Voc

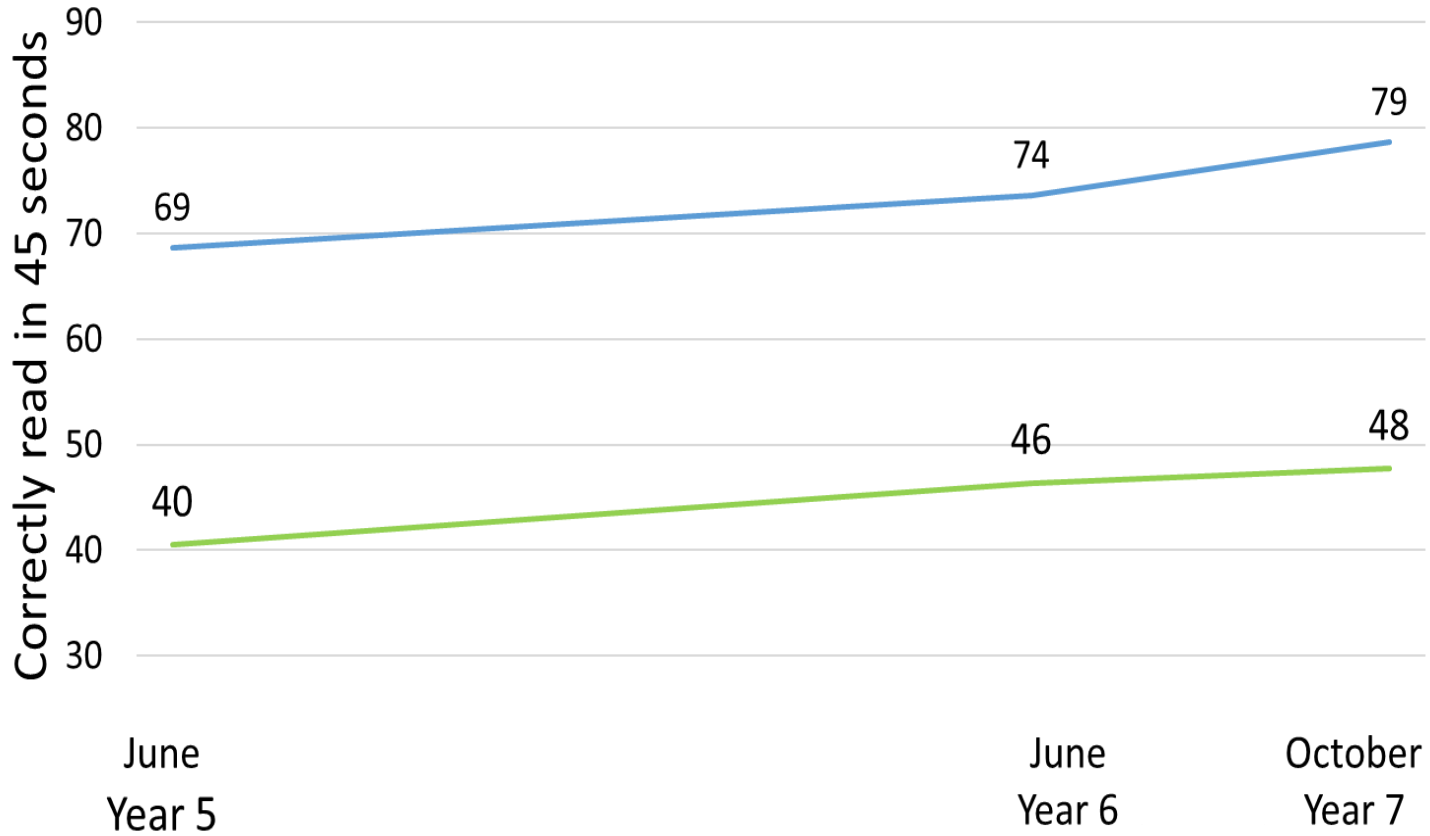
Vocabulary

Reading practice: Student Q

Reading practice: Parent Q

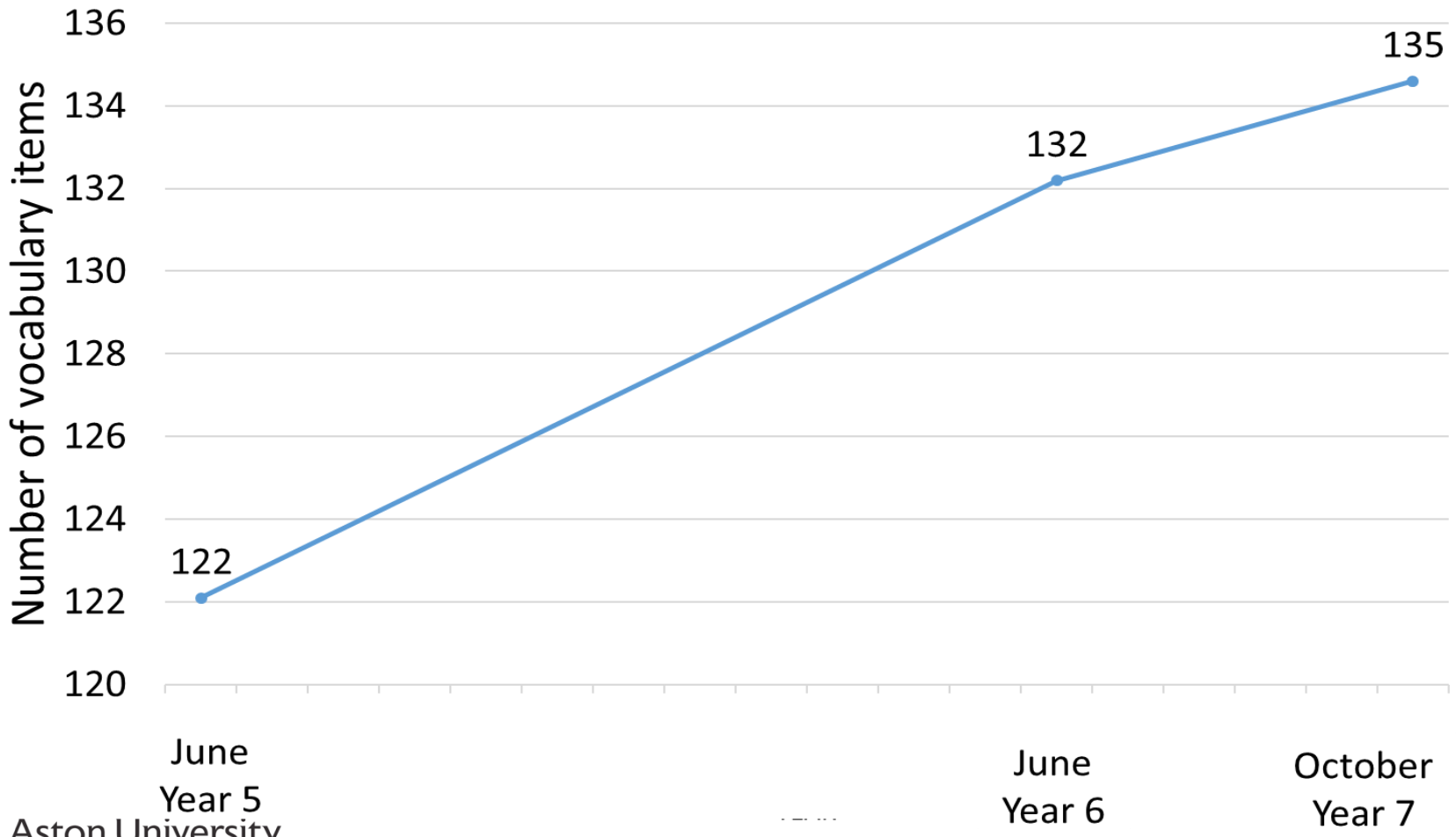
Reading activity: SMS Diary

# Reading Fluency

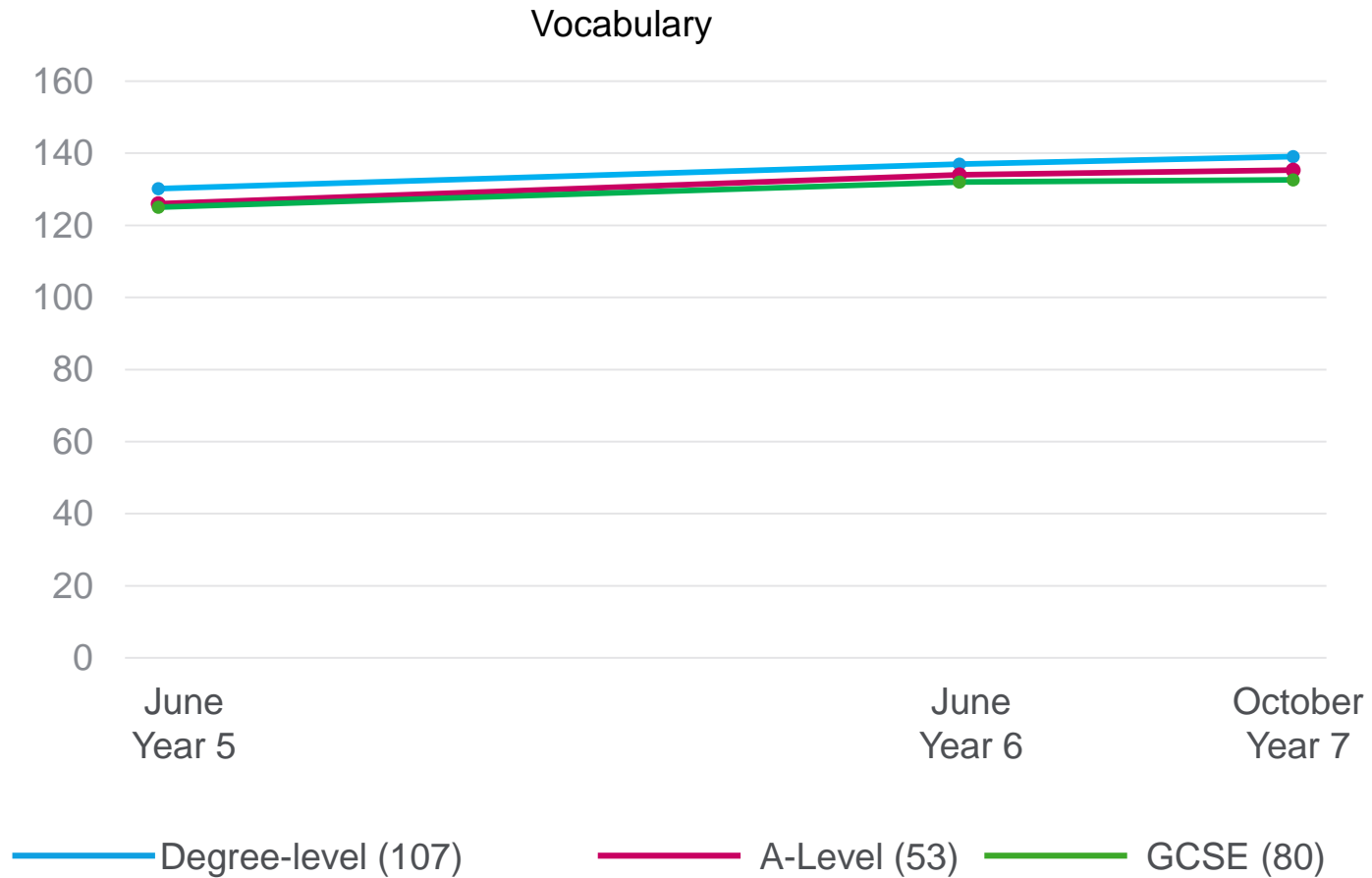


— Phonemic Decoding — Sight word

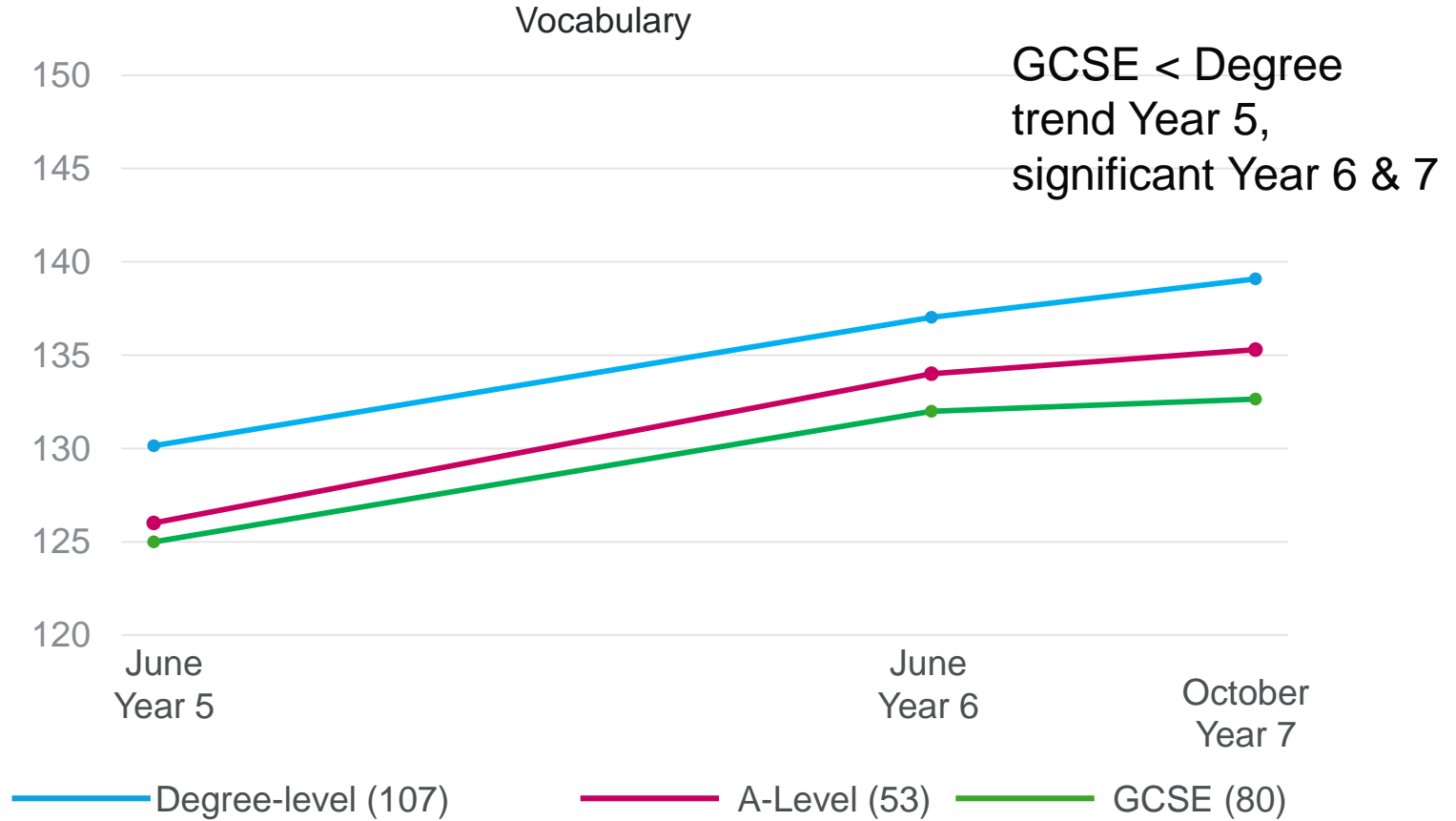
# Vocabulary



# Parents educational background – Growth in vocabulary

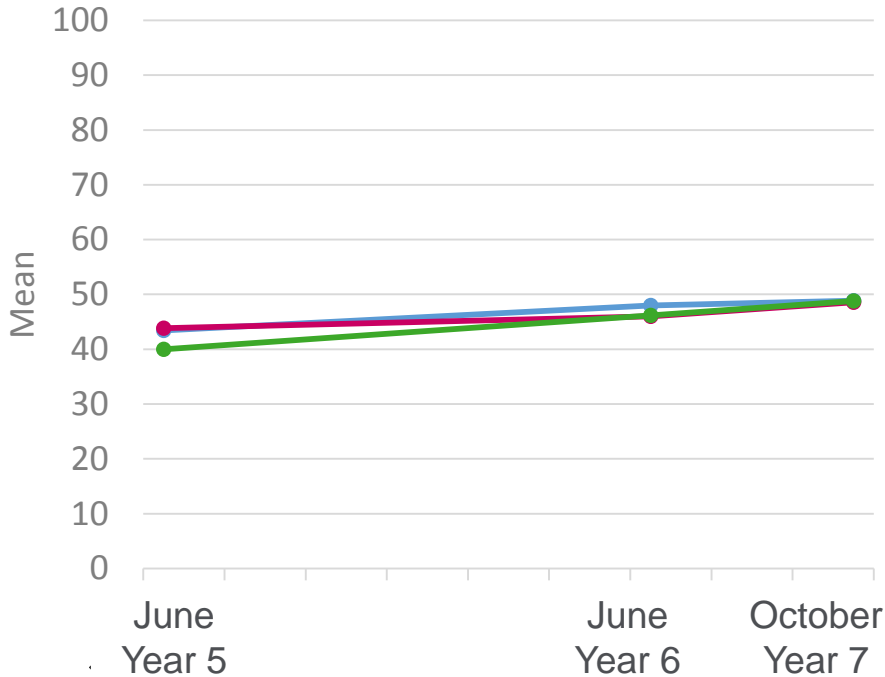


# When we zoom in...

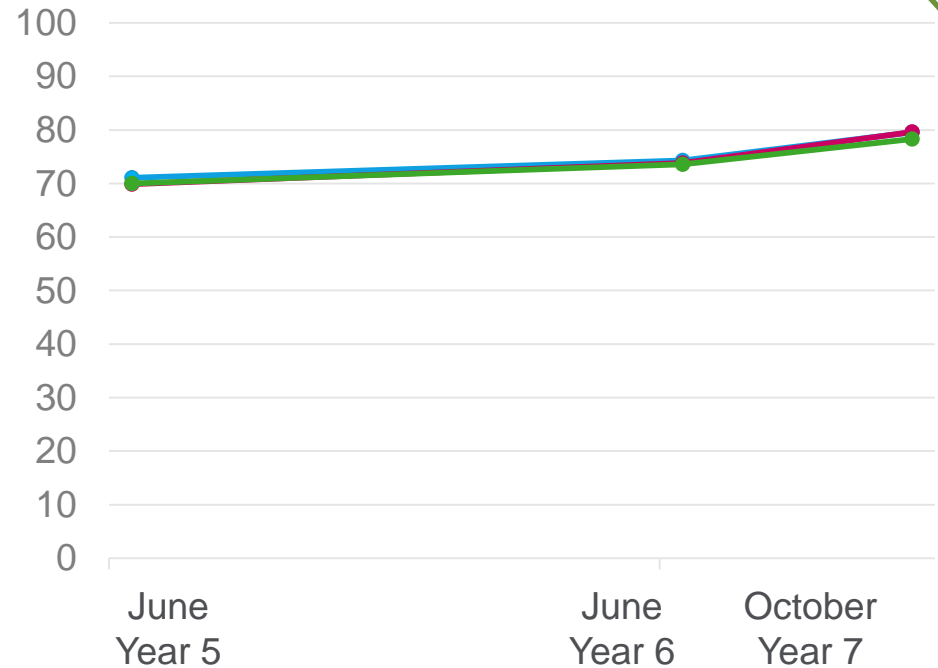


# Parents educational background – Growth in word reading

## Phonemic Decoding



## Sight Word reading



— University (107) — A-level (53) — GCSE (80)

# SES matters more for vocabulary



- ▶ Vocabulary differs for highest vs lowest parent education level; this group difference is stable over time
- ▶ Reading doesn't significantly differ by parental education level
- ▶ Consistent with idea that SES is more closely related to vocabulary than word reading
- ▶ Significant growth in both vocabulary and reading from age 10 to 12 years (receptive vocabulary and reading) – some are surprised by this

# Aims of the RAV project



- **1.** Measure the influences of SES and secondary school transition on growth in reading and vocabulary
- **2.** Test the relationship between reading ability, reading practice and vocabulary knowledge
- **3.** Experimentally test the influence of independent reading on vocabulary acquisition

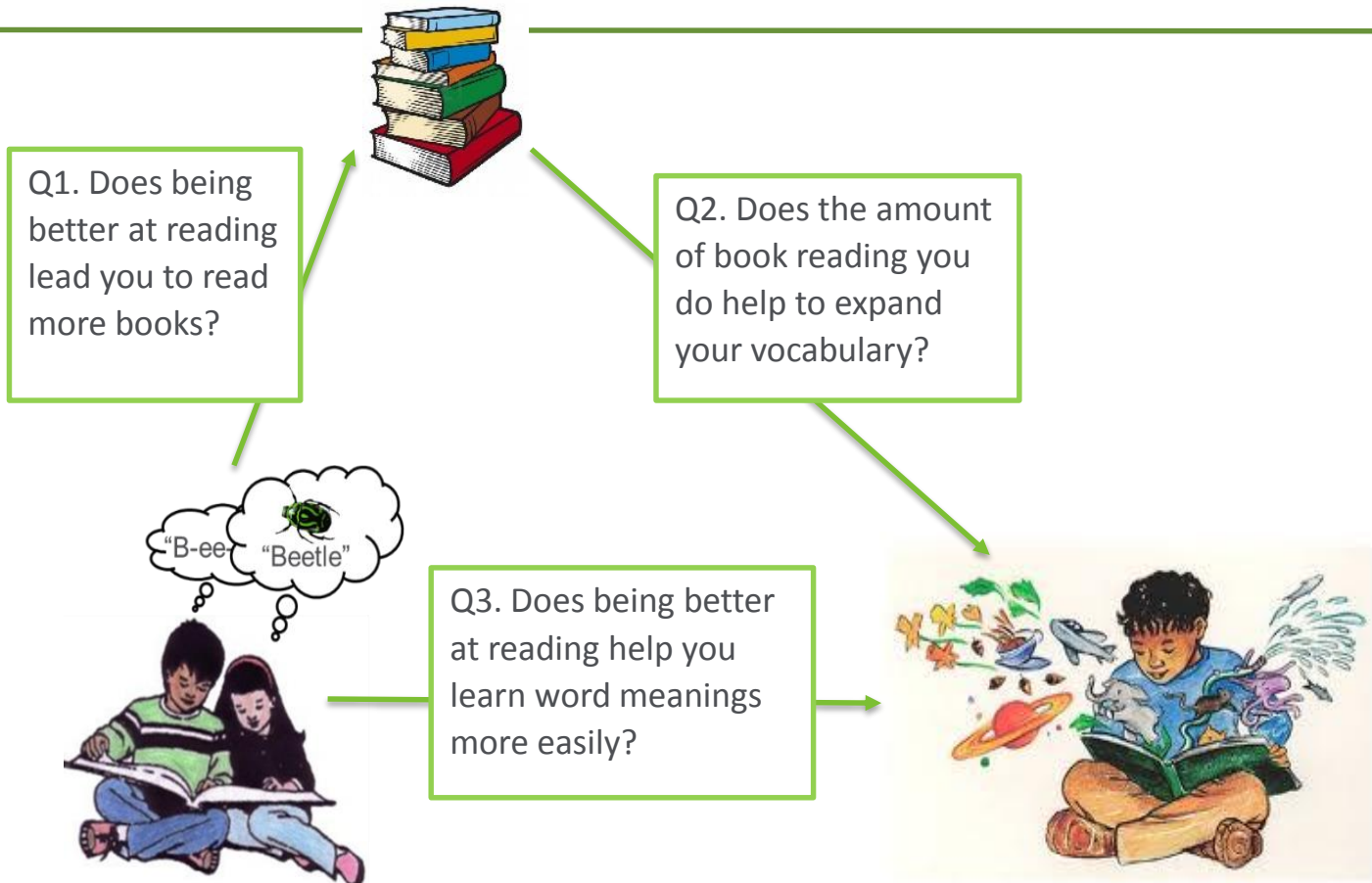


# Reading and Vocabulary

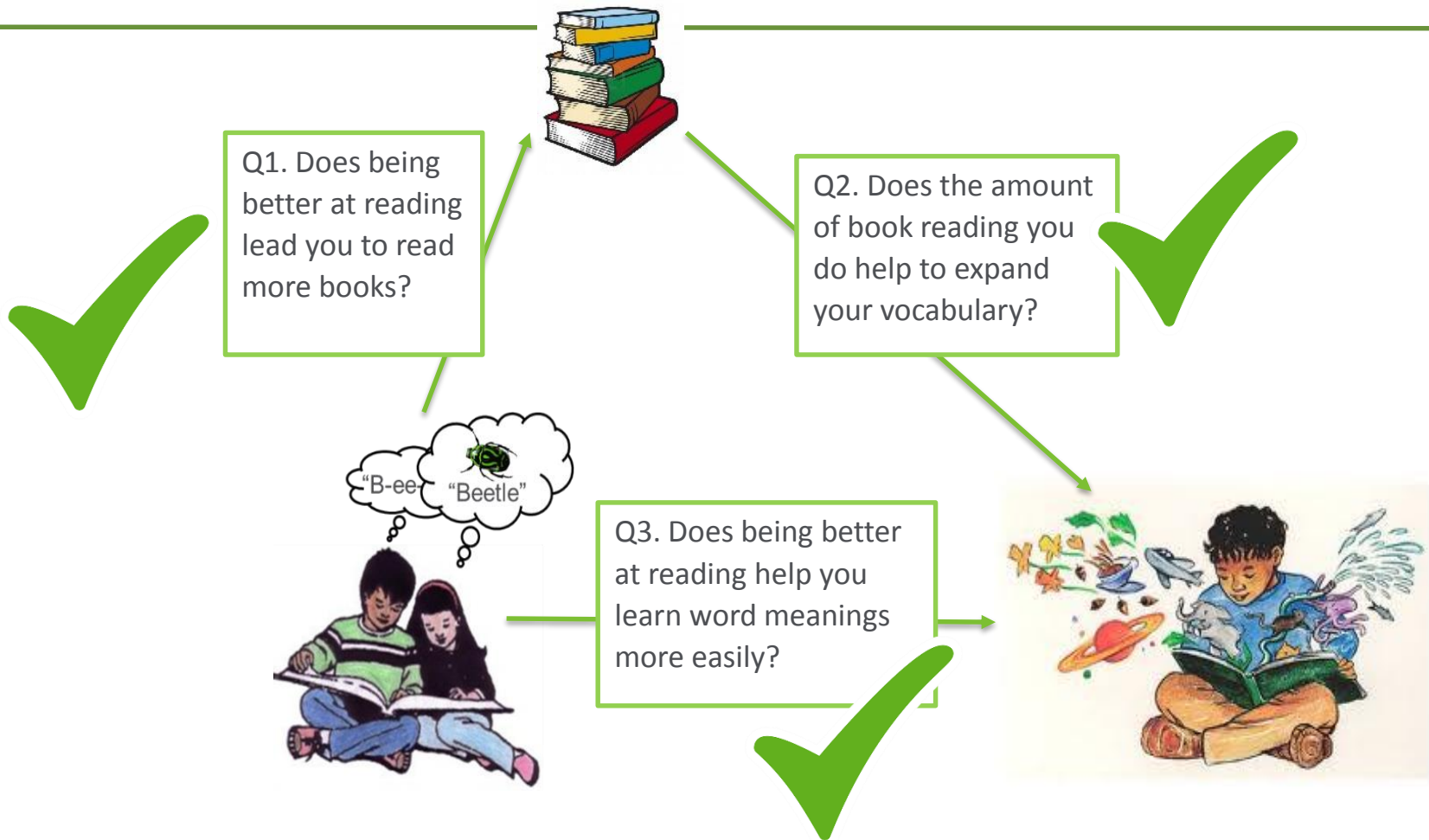


- ▶ During their development, children who choose to read books in their leisure time have
  - ▶ larger vocabularies,
  - ▶ better reading comprehension, and
  - ▶ better technical reading and spelling skillsthan peers who do not read as frequently  
(Mol & Bus, 2011)
  
- ▶ Is this because more able readers read more, with independent reading exposing them to a more diverse range of words than less able readers?
  
- ▶ And/or are more able readers better at using text to learn new words?

# Reading and Vocabulary: model



# Reading and Vocabulary: model



# Results & implications



- ▶ Word reading ability is associated with vocabulary
  - ▶ Even in secondary school, improvements in word reading skills have potential knock-on effects on vocabulary
  - ▶ Interventions to support basic reading skills (e.g., decoding efficiency) should continue into early secondary school
- ▶ Reading practice also predicts vocabulary
  - ▶ More reading may impact vocabulary as well as reading

# Next steps

---

- ▶ Intervene to increase independent reading
- ▶ Naturalistic Experiment: give children books & encourage them to read (van der Kleij et al., 2019)
  - ▶ Does SMS-diary feedback increase reading activity?
  - ▶ Does amount of reading activity predict word learning (track number of exposures to new words- does learning increase with number of exposures?)
- ▶ Come to our workshop after lunch!

# Thanks!



- ▶ Laura Shapiro, Jessie Ricketts, Adrian Burgess
- ▶ Research Assistants Aston University & Royal Holloway, University of London
- ▶ Pupils and Teachers from participating schools
  - ▶ <http://www.aston.ac.uk/alp/>

# Extra slides



# Measures

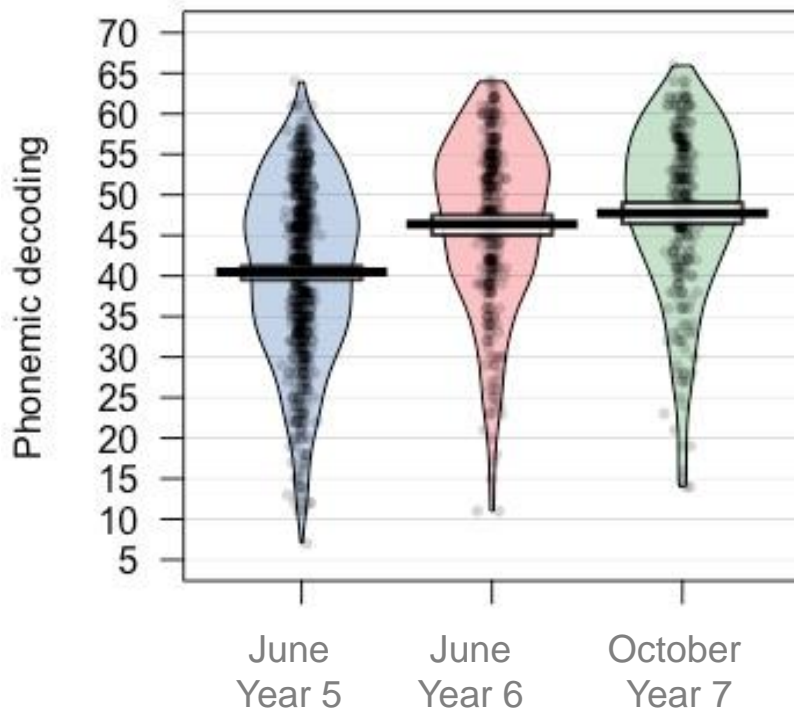
	Year	n	Mean	SD	min	max
<b>Phonemic decoding</b>	Y5	597	40.4	10.98	7	64
	Y6	299	46.38	10.5	11	64
	Y7	251	47.67	10.62	14	66
<b>Sight words</b>	Y5	598	68.63	10.97	21	95
	Y6	299	73.58	11.25	30	106
	Y7	252	78.49	11.66	37	107
<b>BPVS</b>	Y5	481	122.09	16.01	62	152
	Y6	298	132.19	14.88	63	162
	Y7	249	134.58	14.31	83	162
<b>YARC passage 1</b>	Y6	299	8.64	2.29	2	13
	Y7	229	8.58	2.39	1	13
	Y6	296	7.59	2.81	0	13
<b>YARC passage 2</b>	Y7	244	7.49	2.79	0	13



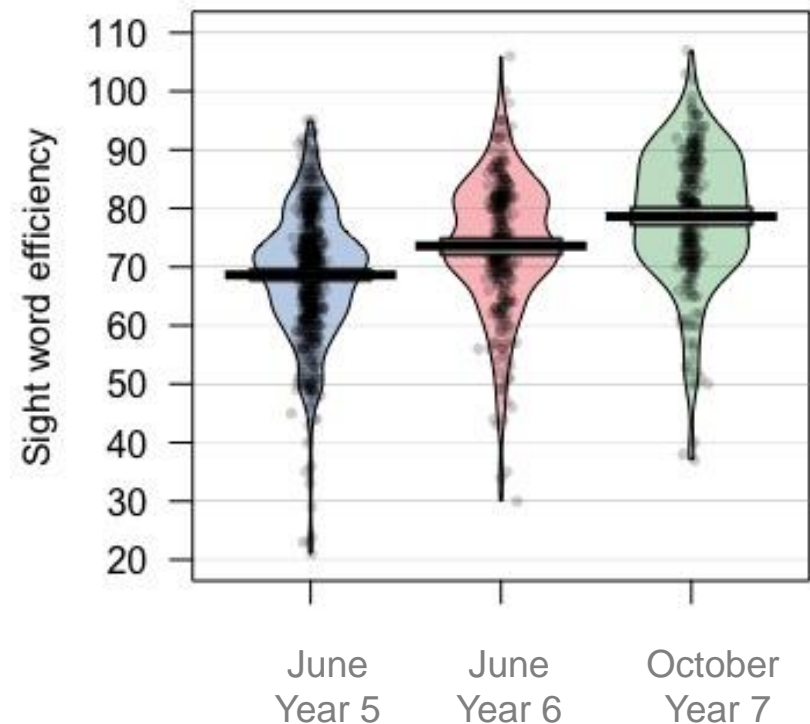
# Growth in word reading efficiency



**Phonemic decoding** +8 nonwords



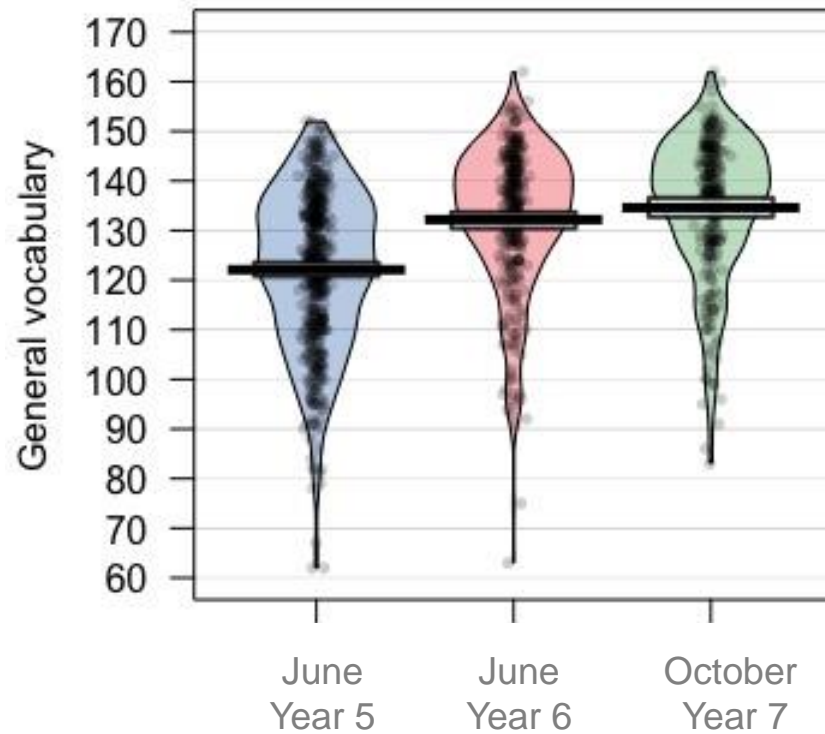
**Sight word efficiency** +10 words



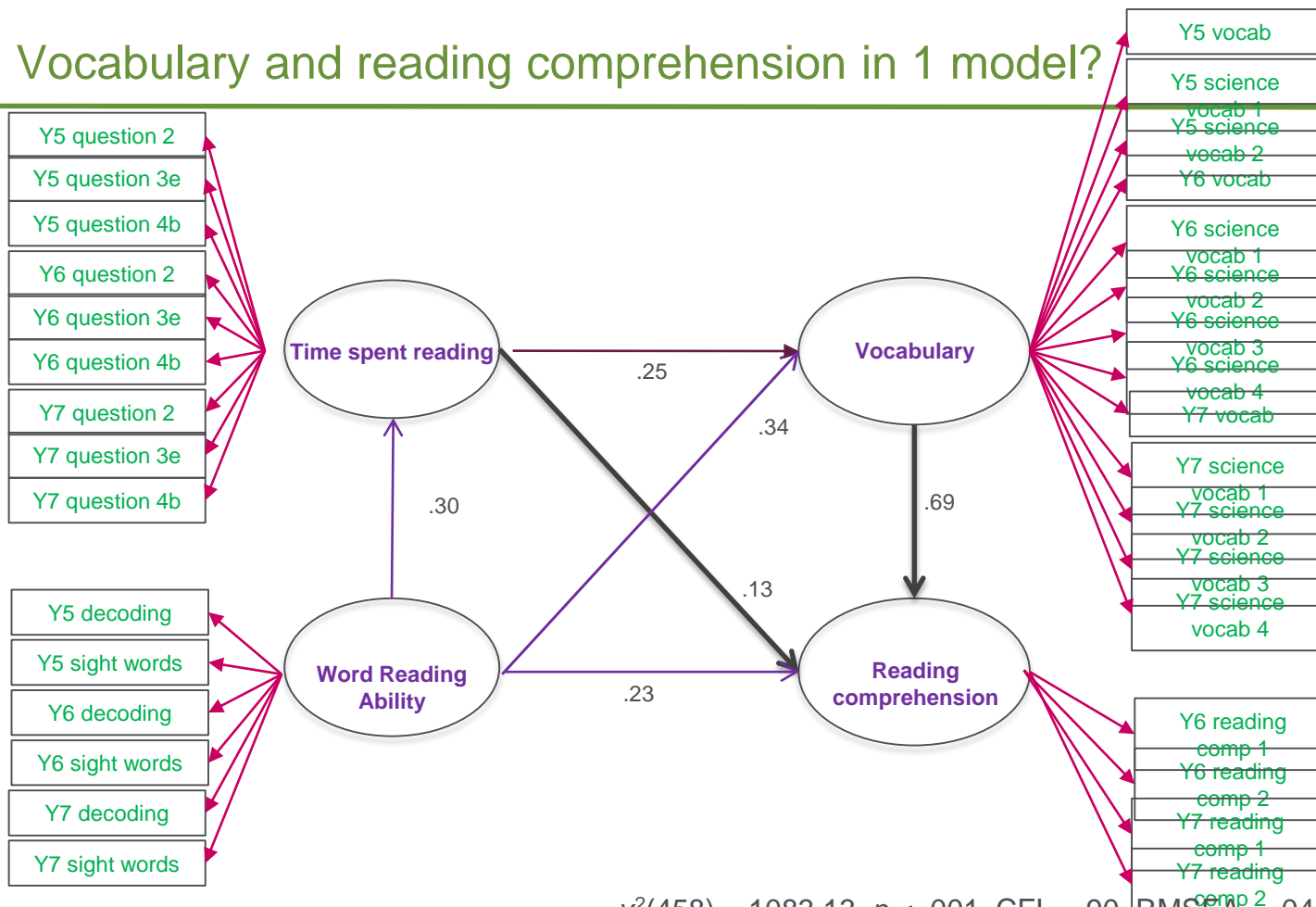
# Growth in vocabulary (BPVS)



**vocabulary** + 13 items



# Vocabulary and reading comprehension in 1 model?



$\chi^2(458) = 1083.13, p < .001, CFI = .90, RMSEA = .045, 90\% CI = .041-.048$

# EXTRA SLIDES

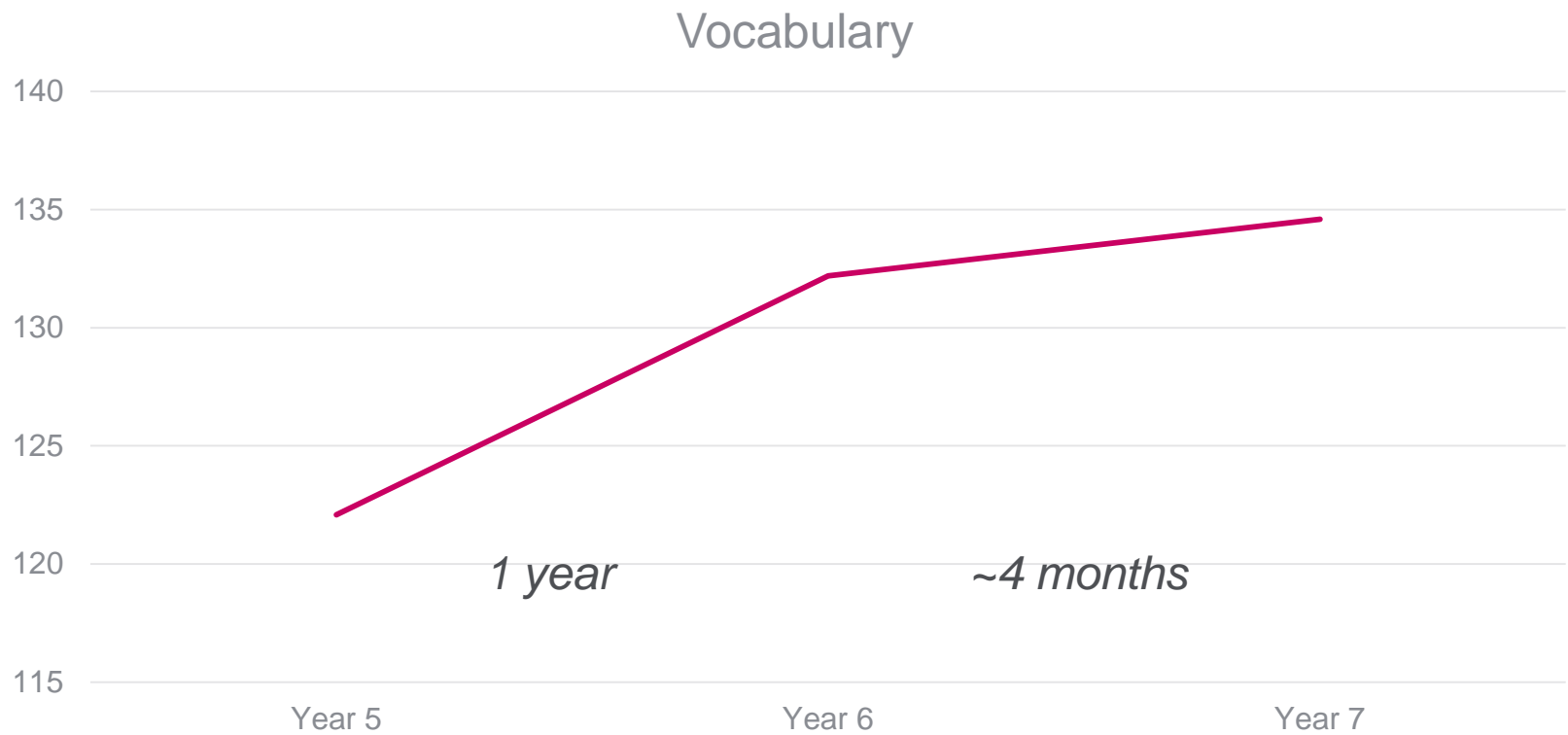
▶ **IGNORE FROM HERE ONWARDS**

# Longitudinal study



significant growth between each time point,  $\eta_p^2 = .42$  and  $.36$  (sight words, decoding)

# Longitudinal study



significant growth between each time point,  $\eta_p^2 = .51$

# Longitudinal study

Table 1. Descriptive Statistics of Year group and Test

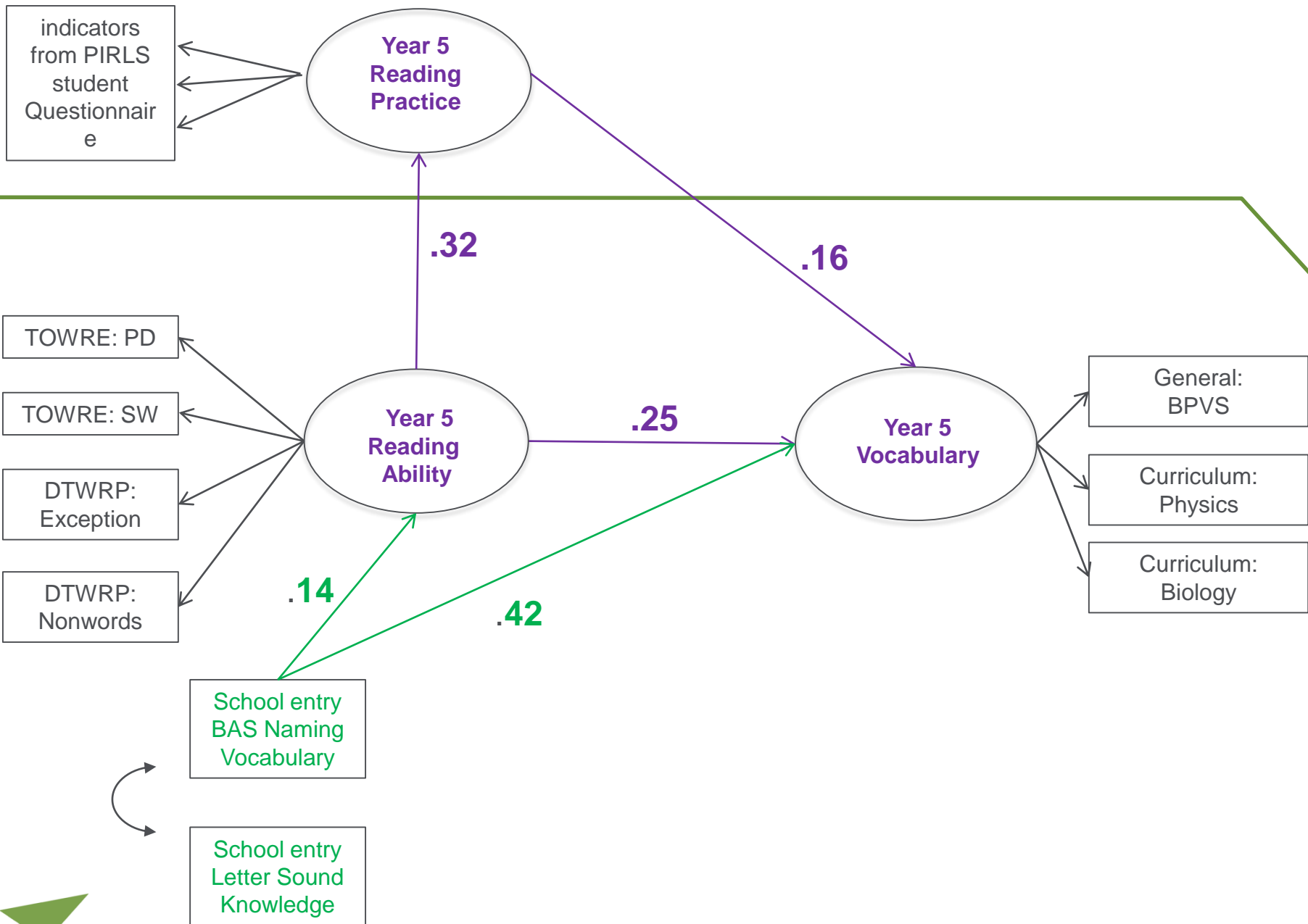
	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>SD</b>
Year 5 Phonemic Decoding	597	7	64	40.49	10.98
Year 6 Phonemic Decoding	299	11	644	46.38	10.50
Year 7 Phonemic Decoding	250	14	66	47.72	10.60
Year 5 Sight Word Efficiency	598	21	95	70.01	10.97
Year 6 Sight Word Efficiency	299	30	106	73.25	11.25
Year 7 Sight Word Efficiency	251	37	107	78.93	11.52

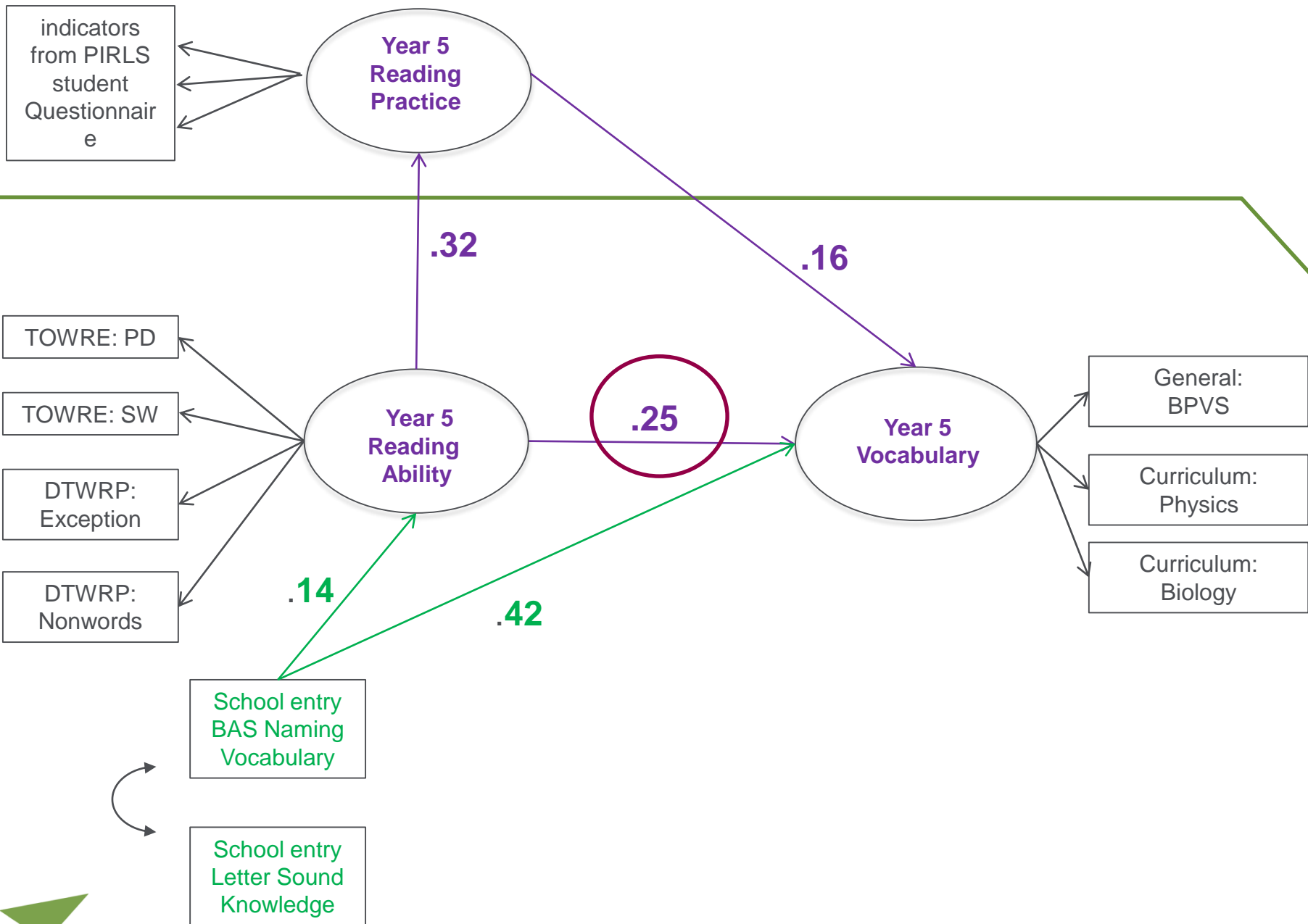
# Phonemic decoding growth

Table 2. Pairwise Comparisons of Time of Testing

(I) Time	(J) Time	Mean Diff (i-J)	Std Error	Sig	95% confidence interval for Difference	
					Lower Bound	Upper Bound
Year 5	Year 6	-4.59	0.49	p<.001	-5.78	-3.40
	Year 7	-6.38	0.51	p<.001	-7.61	-5.14
Year 6	Year 7	-1.78	0.43	P<.001	-2.82	-0.75





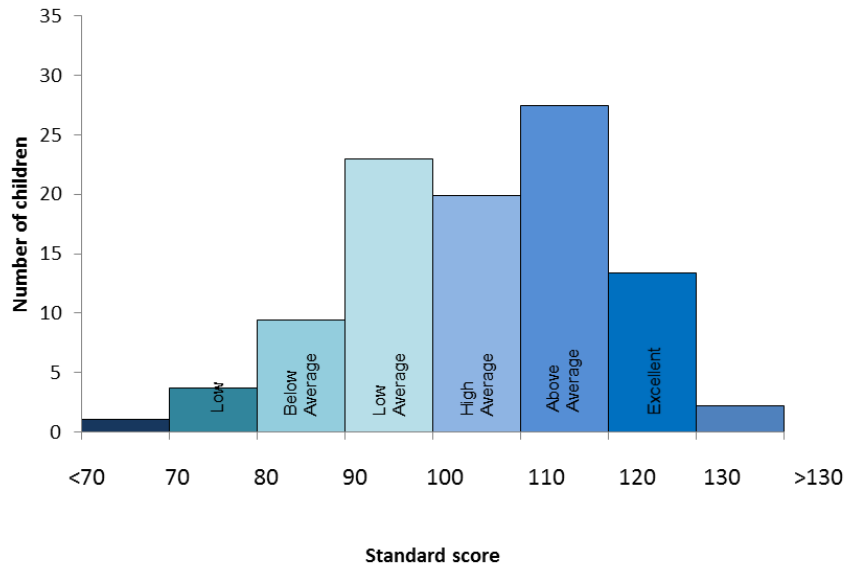


# RAV correlations at Year 5

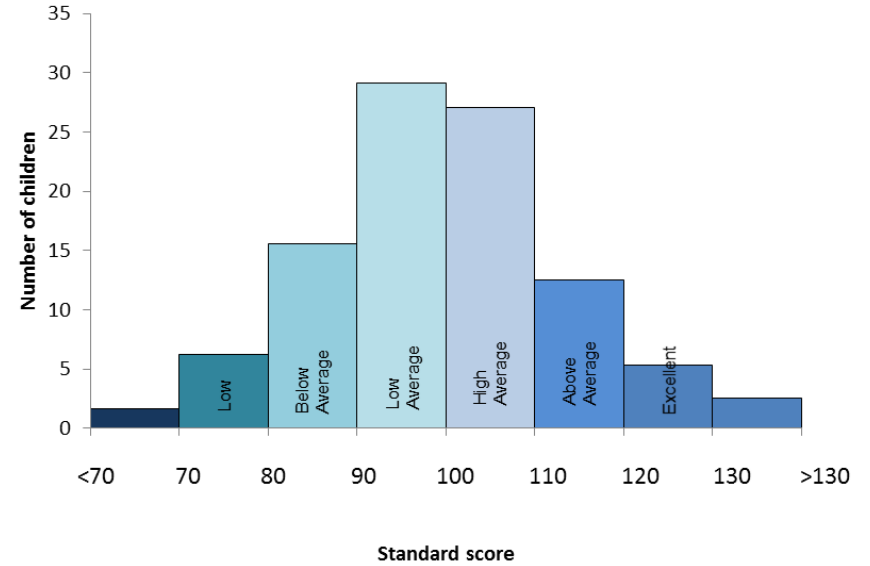
	NonwordA	Exception/	Phonemic/	SightWord	GeneralVo	PhysicsVoc	BiologyVo	for fun (of	stories (of	silently (of	as present	boring	more time	enjoy	imagine	
NonwordAccuracy																
ExceptionAccuracy	<b>0.72</b>															
PhonemicDecodingEfficiency	<b>0.74</b>	<b>0.66</b>														
SightWordEfficiency	<b>0.46</b>	<b>0.55</b>	<b>0.72</b>													
GeneralVocabulary	0.34	0.51	0.33	0.29												
PhysicsVocabulary	0.29	0.37	0.21	0.22	<b>0.57</b>											
BiologyVocabulary	0.24	0.39	0.24	0.23	<b>0.68</b>	<b>0.53</b>										
for fun (often)	0.15	0.15	0.21	0.16	0.23	0.15	0.19									
stories (often)	0.15	0.14	0.16	0.16	0.20	0.12	0.18	<b>0.47</b>								
silently (often)	0.12	0.19	0.13	0.13	0.16	0.17	0.17	<b>0.24</b>	<b>0.28</b>							
as present	0.24	0.22	0.22	0.19	0.28	0.15	0.19	<b>0.43</b>	<b>0.37</b>	<b>0.32</b>						
boring	0.21	0.20	0.21	0.14	0.20	0.16	0.12	<b>0.48</b>	<b>0.38</b>	<b>0.24</b>	<b>0.50</b>					
more time for reading	0.17	0.17	0.21	0.16	0.20	0.11	0.15	<b>0.51</b>	<b>0.37</b>	<b>0.29</b>	<b>0.54</b>	<b>0.53</b>				
enjoy	0.25	0.28	0.26	0.18	0.27	0.17	0.19	<b>0.55</b>	<b>0.42</b>	<b>0.34</b>	<b>0.65</b>	<b>0.63</b>	<b>0.71</b>			
imagine	0.24	0.24	0.25	0.27	0.26	0.16	0.18	<b>0.34</b>	<b>0.30</b>	<b>0.21</b>	<b>0.44</b>	<b>0.36</b>	<b>0.40</b>	<b>0.39</b>		
only if I have to	0.20	0.15	0.17	0.10	0.28	0.18	0.20	<b>0.39</b>	<b>0.32</b>	<b>0.20</b>	<b>0.37</b>	<b>0.48</b>	<b>0.39</b>	<b>0.47</b>	<b>0.25</b>	

# Year 5

## Phonemic Decoding Efficiency



## Sight Word Efficiency



Average = 105

Average = 99

# Outcomes workshops

Based on the averages 'Teacher's Dead' was the clear favourite among the group, with 'Wonder' and 'Terror' Kid in the top 3. 'For the Record' was the least favourite book, along with 'The Unforgotten Coat' and 'The Vampire Hunters'.

Based on the averages 'Teacher's Dead' was the clear favourite, with 'Time Machine' and 'Frozen in Time' in the top 3. 'For the Record' was their least favourite, along with 'Terror Kid' and 'The Unforgotten Coat'.

For the record and Unforgotten coat least favourite; Teachers dead, Time machine, Frozen in time favourites

Favourite themes: murder/mystery, thriller  
adventure/action or comedy