

Do children need explicit instruction in learning to read?

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- English spelling has two forms of regularity

Spelling-sound regularities

cab, pat, act, sad

Spelling-meaning regularities

banker, teacher, builder, gardener

- Considerable debate about how best to facilitate discovery of these regularities (e.g. synthetic phonics, whole language, inquiry-based approaches).



Discovery learning is the central pillar of constructivism – learner constructs knowledge for themselves

“ ... knowledge students construct on their own, for example, is more valuable than the knowledge modeled for them; told to them; or shown, demonstrated, or explained to them by a teacher.” (Loveless, 1998)

In reading acquisition, learners extract regular patterns themselves

“We sit with our children reading whole books, talking about them, sometimes pointing at whole words, sometimes at letters. We sit with them writing shopping lists, labelling things in their rooms, doing texting on phones, planning holidays looking at pictures Parents and carers have been doing this for centuries” (Michael Rosen, 2013)

Oral Language Training (Day 1)



- Each adult learns two sets of 24 spoken words
- 6 items in each of 4 categories – animals, tools, vegetables/fruit, vehicles

bæv



fig



zug



gɒf



mæz



pɒm



pub



biv



baɪv



fɛg



zʌt



gəʊb



mɛp



pɑɪb



pəʊf



bʌv



Writing Systems



- Each adult then maps these onto two different artificial orthographies
- Both orthographies have one-to-one letter-sound mappings

 bæv	 fig
 zug	 gɒf
 mæz	 pɒm
 pub	 biv

 baɪv	 fɛg
 zʌt	 gəʊb
 mɛp	 paɪb
 pəʊf	 blv

Writing Systems



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Systematic print-meaning

ቶጻጸጸ

bæv



ፀጵጵጵ

fig



ቶጵጵጵ

zug



ጵጵፀጵ

gɒf



ፀጵቶጵ

mæz



ጵጵፀጵ

pɒm



ጵጵቶጵ

pub



ቶጵጵጵ

biv



Arbitrary print-meaning

ბგზსუ

baɪv



ზაჰზ

fɛg



წღბუ

zʌt



ჰმბზ

gəʊb



ჯაძც

mɛp



ქვბი

paɪb



ქმზი

pəʊf



ბღსც

blv





1. Reading aloud x 4 per day } focus on print-to-sound
2. Saying meaning x 4 per day
3. a) Select word (1/24) to match picture
b) Select picture (1/24) to match word } focus on print-to-meaning
4. Semantic choice (1/4)
e.g., Has black and white stripes and hoofs

Testing (Day 10)



1. Reading aloud
2. Spelling-sound generalisation
3. Saying meaning
4. Recognition memory
5. Spelling-meaning generalisation
6. Oral language knowledge

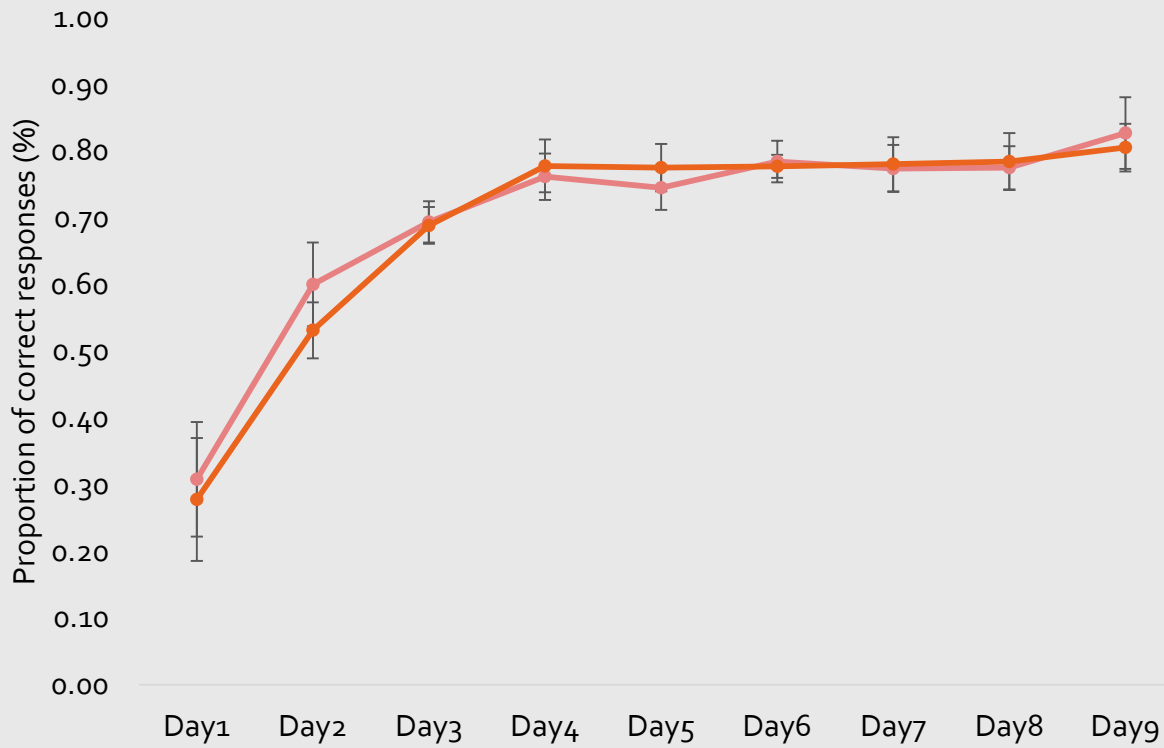
Individual differences measures – word and nonword reading, spelling, vocabulary, naming efficiency, phonological awareness



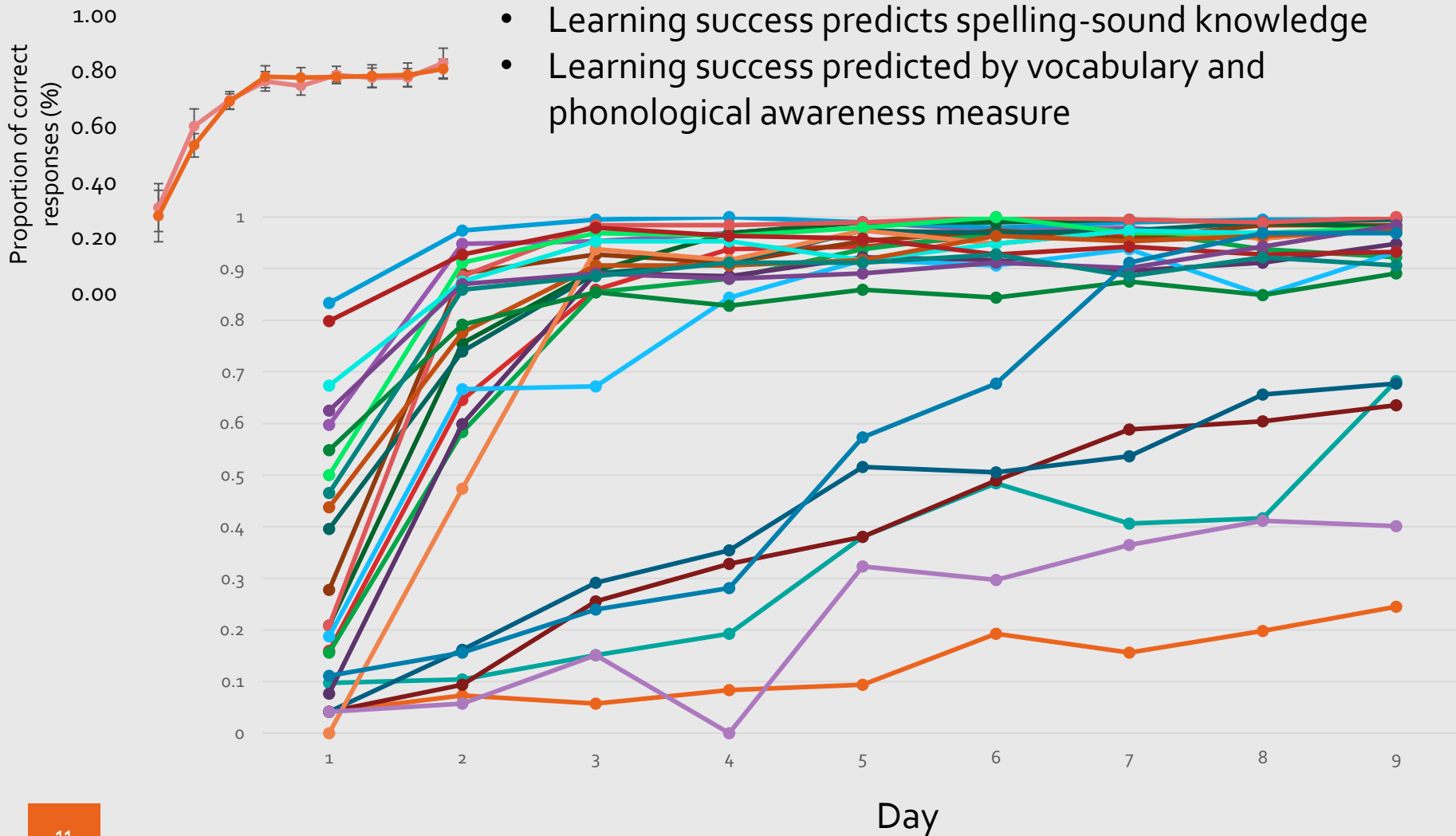
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Reading Aloud, Discovery



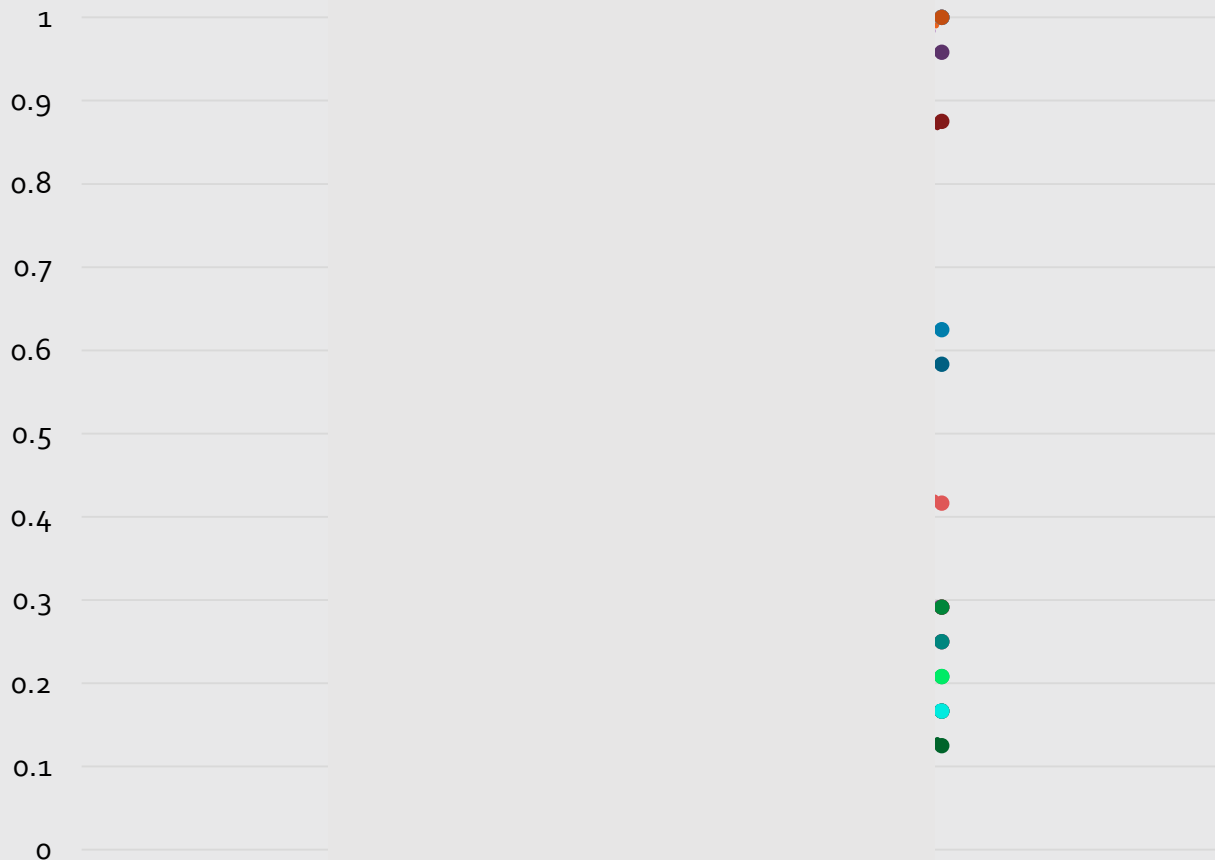
Reading Aloud, Discovery



Semantic Generalisation, Discovery



Systematic Language



- Only $\frac{1}{2}$ of adults above chance on semantic generalisation
- Those who captured semantic regularity usually failed to capture phonological regularity and vice versa
- Only $\frac{1}{4}$ of adults mastered both types of regularity
- Debrief comments like children learning to read

Summary - Discovery Learning



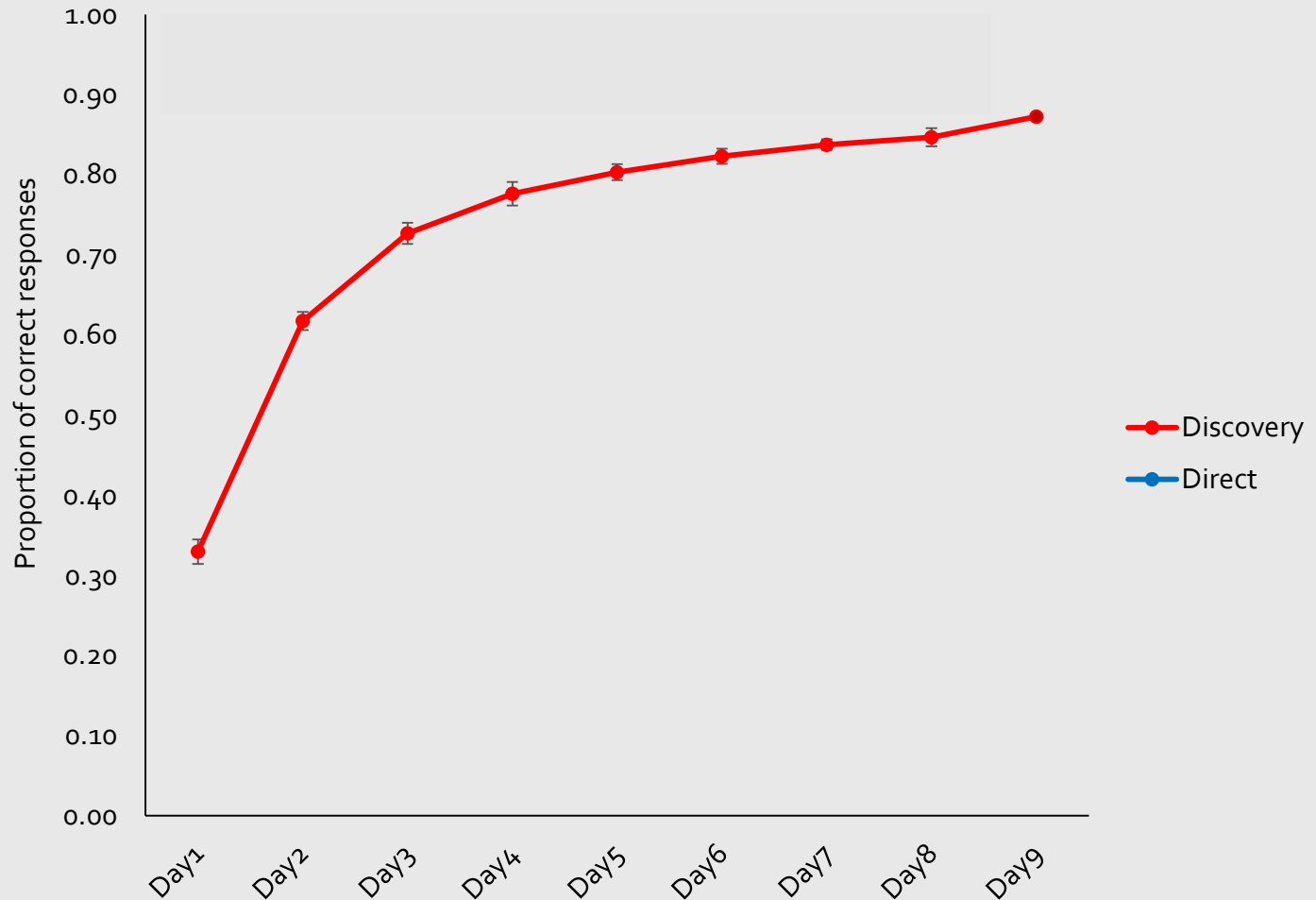
- Substantial variability in ability of skilled adult readers to discover spelling-sound and spelling-meaning patterns
- Discovering spelling-sound patterns predicted by underlying oral language ability
- Discovering spelling-sound patterns usually traded against discovering spelling-meaning patterns; only $\frac{1}{4}$ of sample discovered both.
- Implies that some children would extract the main regular patterns, but many wouldn't without more explicit instruction

Explicit Instruction (Day 2, ~30 mins)



- Explain structure of each alphabet
- Spelling-sound task – each visual symbol presented with accompanying sound
- Spelling-meaning task – each final (silent) letter presented with accompanying meanings for systematic language

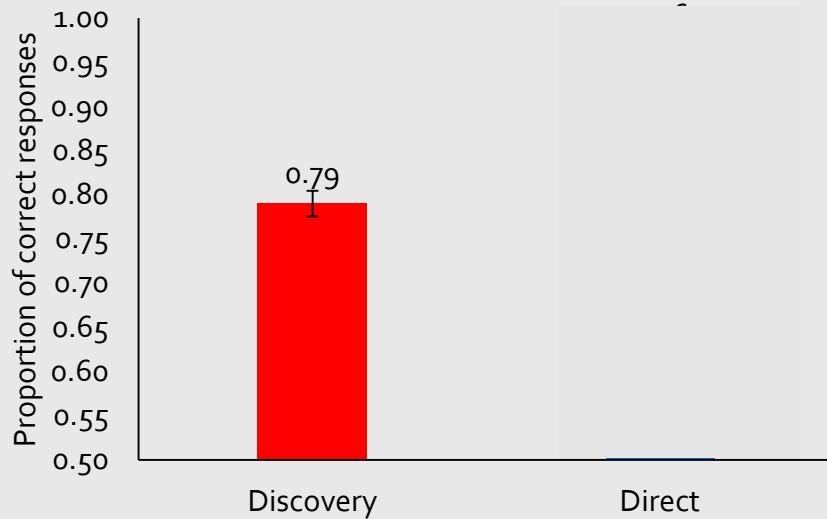
Discovery vs Explicit – Reading Aloud



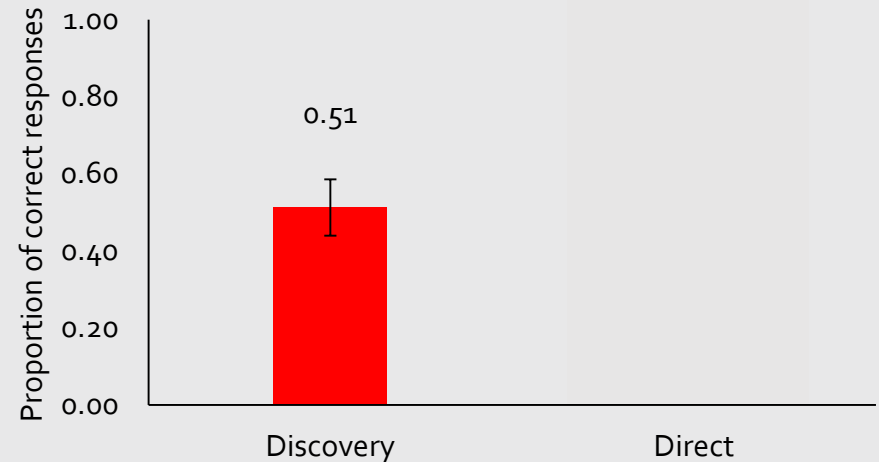
Discovery vs Explicit – Generalisation



Spelling-sound generalisation



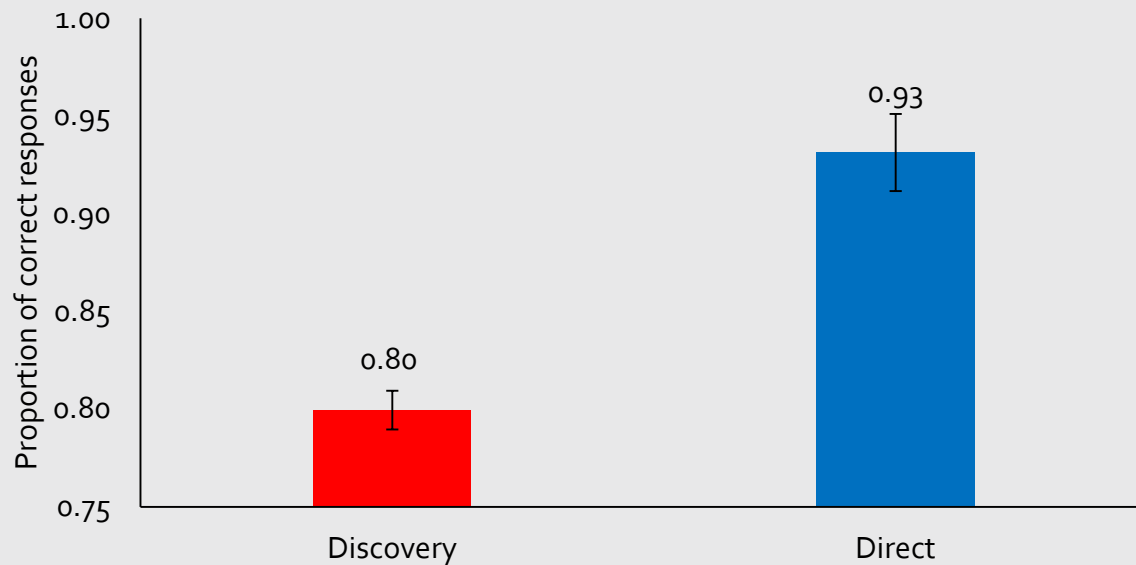
Spelling-meaning generalisation



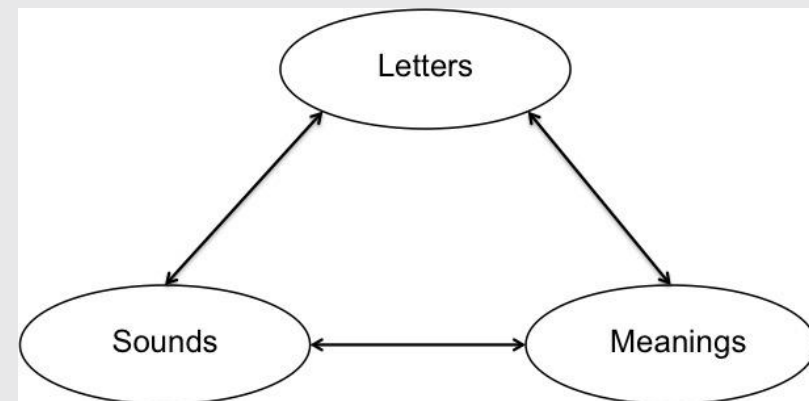
Discovery vs Explicit – Oral Language



Oral Language



Note. Spoken language was trained only on Day 1.



Conclusions – Explicit Instruction



- Explicit instruction structures future learning
- Explicit instruction learners displayed near ceiling performance from the start; discovery learners never caught up.
- Explicit instruction wipes away diversity in underlying language skills; importance for SEND.
- Explicit instruction on writing system transfers to spoken language knowledge
- Results give strong support to use of explicit instruction when pupils are required to capture underlying regular patterns in a body of knowledge

Thank you!

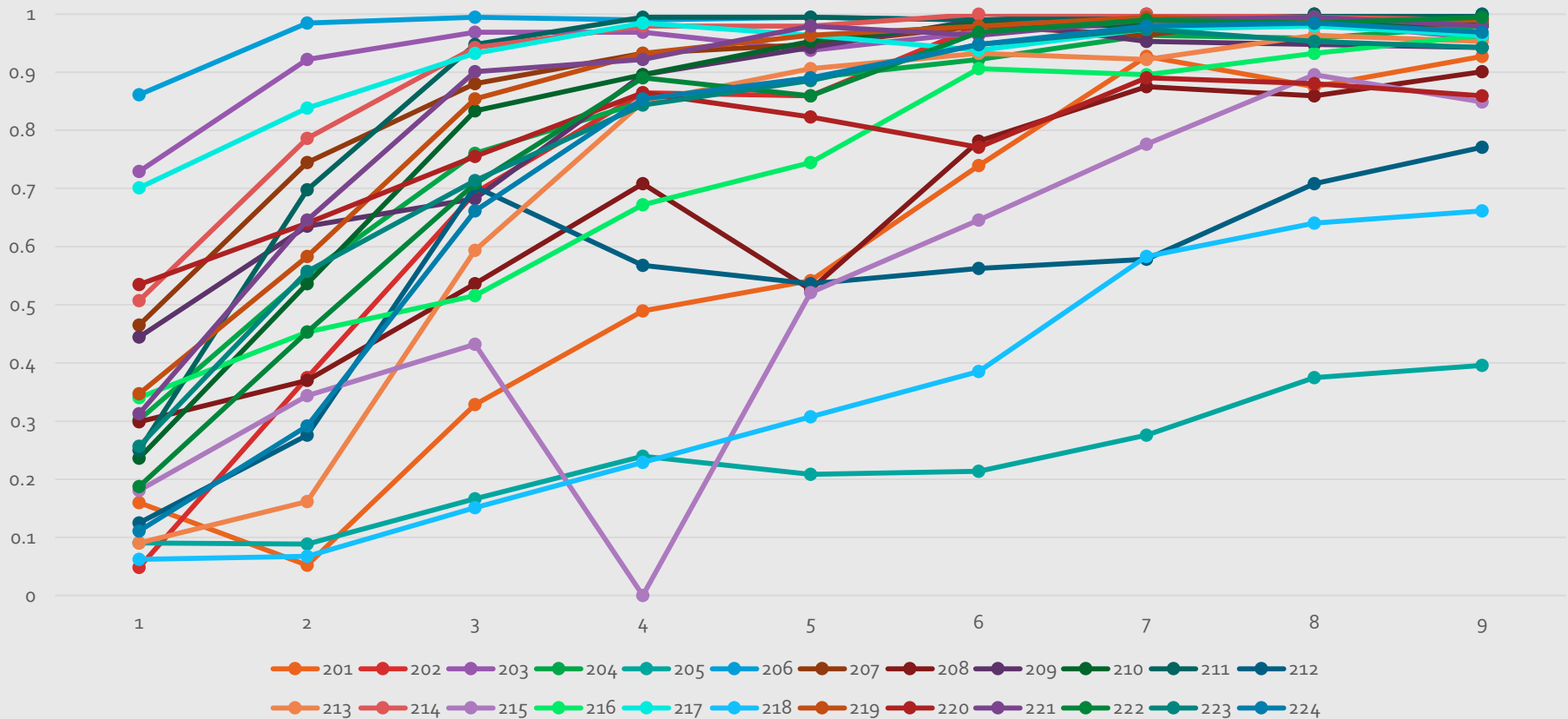


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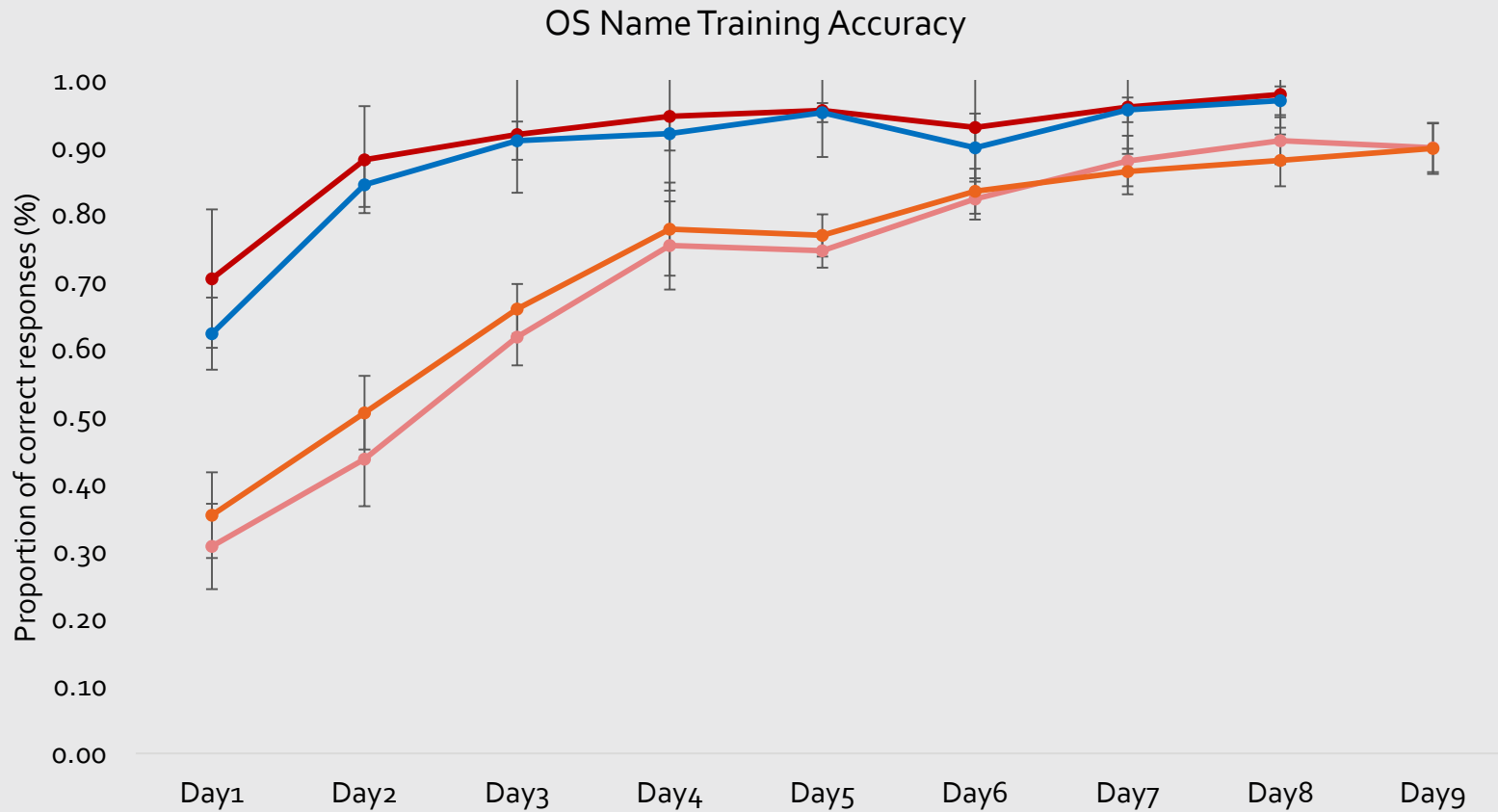
Training Data – Saying the Meaning, Discovery



Arbitrary / Systematic Collapsed



Training Data – Saying the Meaning, Discovery





Some participants discovered aspects of the writing system ...

"Symbol at the end of the word showed meaning category, other symbols showed sounds"

"The last symbol told you the category, which meant you didn't have to learn all of the symbols - just the first and last"

"Ignored 4th letter, matched letters onto sounds rather than English letters, learnt quickly so didn't need rules to help"

Some participants really didn't!

"Sometimes showed meaning (e.g. canoe, tricycle, squirrel and tomato had same symbol"

"No rule or pattern"

"Silent letters at the end, groups had same symbol at the beginning, read words right to left"

"Categories (e.g. transport and animals) have quite similar sounds, used two symbols out of four to discriminate"