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Building Decoding Fluency in Children with Reading Delay and Antisocial Behaviour.

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In Summary:

- Reading requires acquisition of component skills (e.g. Adams, 1990)
- Some children fail to acquire skills due to a variety of reasons (e.g. opportunity, neurodevelopmental theory)
- Up to 5-20% of children do not improve significantly even with remedial help
- Biggest difference between older poor readers and good readers was decoding fluency (Williams, 2002)
- Decoding fluency intervention found to be effective and feasible (Church, 2005)

In Summary (cont'd):

- Reading delay and antisocial behaviour common childhood disorders; large overlap (e.g. Fergusson & Horwood, 1995)
- Both difficulties have high societal prevalence & are associated with poor outcomes
- Any intervention for children with antisocial behaviour must manage behaviour as well as maintain motivation

Study Aims

- To identify children who:
  - Were missing the component reading skill of decoding fluency
  - Who displayed antisocial behaviour in the classroom
- To replicate, with them, an intervention designed by Church, Nixon, Williams & Zintl (2005)
- To explore the question of whether children who have reading delay and antisocial behaviour need reinforcement scheme in order to maintain engagement in learning activities

Participants

- Children selected into study if they scored:
- >35/60 on Phonemic Segmentation Test
- <60 correct responses/minute on Decoding Fluency Test
- Reading age for rate was >12 months behind chronological age as measured by Neale Analysis of Reading Ability
- ≤106 on the Canterbury Social Development Scale

More Method

- Peer tutors: recruited at teachers' suggestion
- Setting
- Teachers to continue "teaching as usual"
- Contingency management:
  - Peer tutors for Group 1 removed for last 5 sessions – needed contingency management to stay on task
  - Behaviour chart – checked every 2 mins
  - Group 2

Demographic Data & Baseline

	Eth	Sex	Yr/class	Age	Phon	DF	Acc	Comp	Rate	CSDS
Sophie	P	F	4/2	8:4	59	24.5	6.9	7.1	7.0	107
Isaiah	M	M	3/1	7:11	48	19.5	6.0	<6*	6.8	77
Emily	P	F	3/1	7:11	45	18	6.0	<6*	6.3	64
Jesse	P	M	3/2	7:8	38	8.5	<6*	6.2	<6*	95
Josh	P	M	4/3	8:3	53	19.5	6.5	6.11	6.11	105
Jamal	P.I	M	3/1	7:3	49	8	<6*	<6*	<6*	67
Randall	P	M	4/3	8:9	42	32	6.7	6.5	7.3	74

*P=Pakeha, M=Maori, PI=Pacific Islander

Teaching Procedures and Stimulus Set

- Peer tutors and participants taught how to use the practice materials.
- Three practice activities:
  - Flashcards
  - "Reading racetrack"
  - "Snap!"

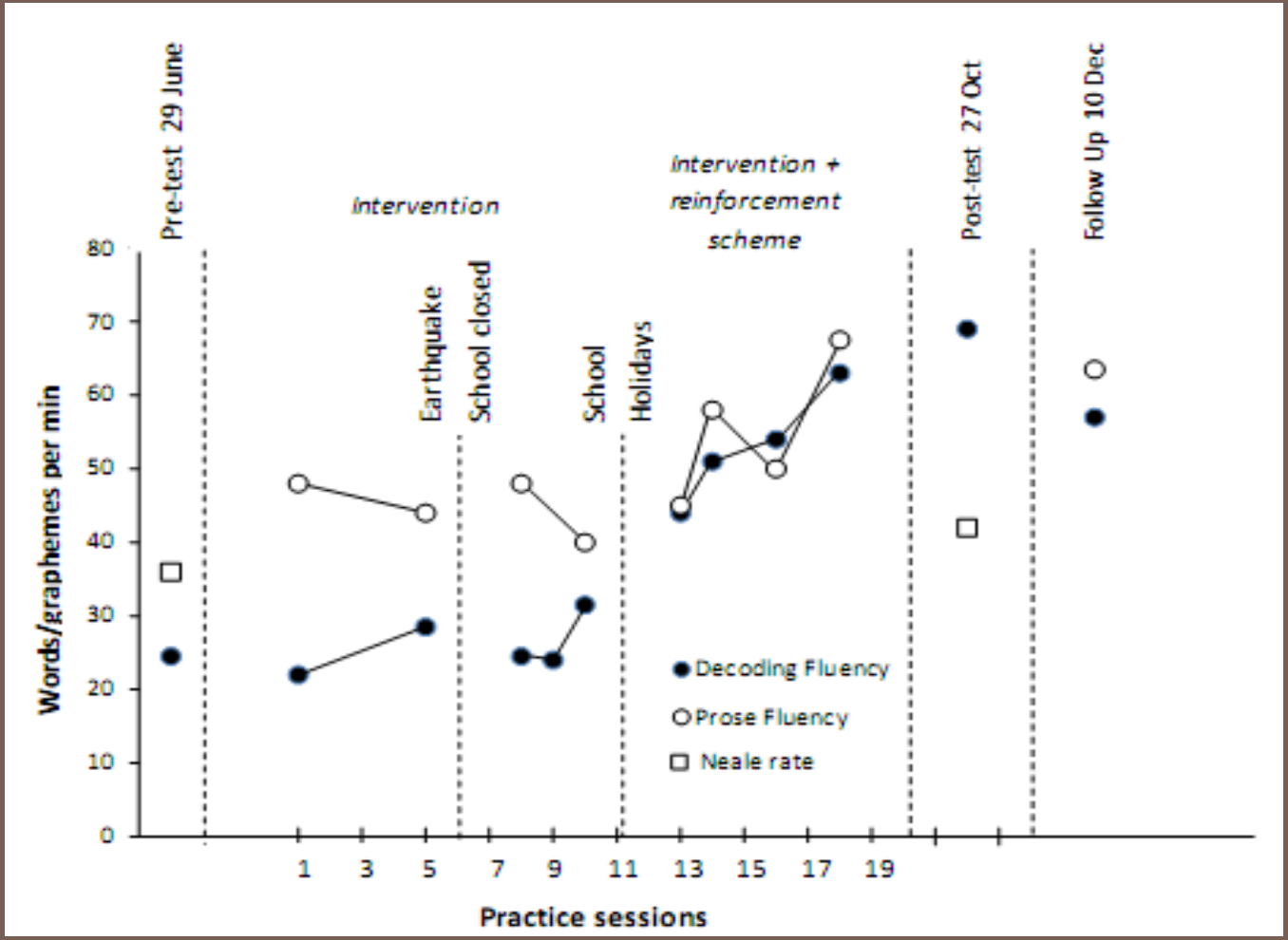
Teaching Procedures and Stimulus Set

- Four practice lists were compiled:

Practice List A1	Practice List A2	Practice List B1	Practice List B2
fly	boil	her	coin
nice	teeth	tune	video
kick	shoot	rain	queen
chase	sharp	dark	porch
wit	say	cuff	boot
cute	girl	loan	town
yes	term	then	loud
run	road	way	that
van	down	feet	Roy
Ken	mouth	zip	church
quiz	short	cake	zoom
prize	cheap	get	shirt
not	hurt	size	job
chain	weed	wide	year
box	joy	six	my

(Sourced from Church, Nixon, Williams & Zintl, 2005, p. 8)

Sophie


Pre-test 29 June
Intervention
Earthquake
School closed
School
Holidays
Intervention + reinforcement scheme
Post-test 27 Oct
Follow Up 10 Dec
Words/graphemes per min
0
10
20
30
40
50
60
70
80
1
3
5
7
9
11
13
15
17
19
Practice sessions
Decoding Fluency
Prose Fluency
Neale rate

Jamal

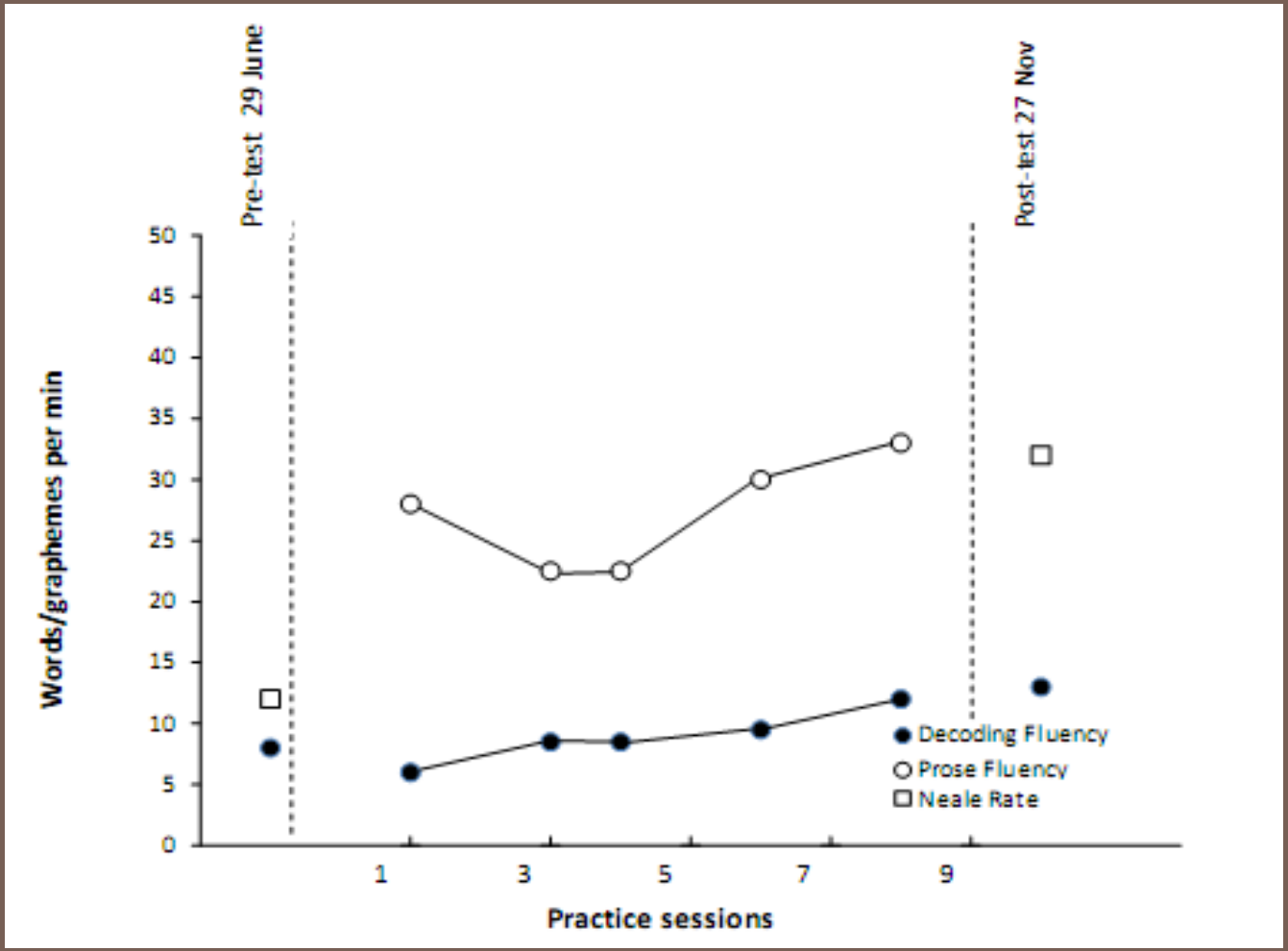

Pre-test 29 June
Post-test 27 Nov
Words/graphemes per min
50
45
40
35
30
25
20
15
10
5
0
1
3
5
7
9
Practice sessions
Decoding Fluency
Prose Fluency
Neale Rate

Table 5. Pre- and Post-test reading ages on the Neale Analysis of Reading Ability.

Child	*Pre-test* Accuracy Reading age	*Post-test* Accuracy Reading age	*Pre-test* Comprehension Reading age	*Post-test* Comprehension Reading age	*Pre-test* Rate Reading age	*Post-test* Rate Reading age
Sophie	6:9	7:0	7:1	7:0	7:0	7:5
Isaiah	6:0	6:9	<6.0	7.1	6:8	7:11
Emily	6:0	6:5	<6:0	6:4	6:3	7:10
Jesse	<6:0	6:0	6:2	6:0	<6:0	6:2
Josh	6:5	6:5	6:11	6:4	6:11	9:8
Jamal	<6:0	6:2	<6:0	6:2	<6:0	6:11
Mean	*6:0*	*6:5*	*6:1*	*6:7*	*6:4*	*7:8*

Discussion (cont'd)

- Replication not achieved
- The reinforcement scheme was largely effective
  - Only needed when peer tutors lost
  - Did not need extra reward systems (bar Jesse)
- Peer tutoring as an intervention technique
  - Successful once established – replacements needed twice
  - Effective teams had reciprocal relationship
  - No observed iatrogenic effects on peer tutors

Discussion (cont'd)

- Intervention effects
  - Positive effects
  - However, much smaller gains than original study
  - Did not gain fluency (bar Sophie), but prior reading level much lower than original study: 24.5 wpm vs. 45 wpm
  - Children still learning phoneme-grapheme equivalence relations
  - So, how did gains occur?

Discussion (cont'd)

- Possible reasons for unexpected gains:
  - Hypothesis that functional level of fluency is 60 graphemes per minute incorrect
  - Measurement error accounts for gains
  - Participants had never been explicitly asked to increase fluency
    - Practice effects
    - Desire to please researcher

Discussion (cont'd)

- Real-world research: Efficacy vs. Effectiveness
  - Mainstream classes
  - Uncontrolled variables
  - Earthquakes
  - Difficulty with implementation

Limitations of Present Study

- Short length of time of intervention
- Only one set of scores as pre- and post-test measures
- No rater reliability data

Implications

- Need for comprehensive analysis of reading prior to intervention implementation
- Suggests that interventions effective for children with reading delay and antisocial behaviour in “much the same way” as for typically-developing children