Helping poor readers read better using HFW flashcards

Central contributions:

- Applicability to classroom HFW training practices.
- Use of the Wampold-Wampold method of randomization which made statistical analysis of this single case design possible.

Research questions

HFW training →

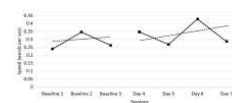Word reading: accuracy and transfer.

Passage reading: accuracy, speed, and comprehension
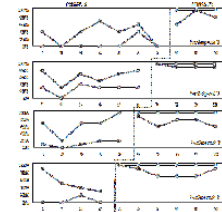
Rationale for the research

1. HFW training is widely used in NZ but hasn't been researched enough.
2. None of the research carried seemed to be single case design.

Research design

Experiment 1
Single case design with one participant

Experiment 2
Multiple baseline with five participants

HFW training

▶ Experiment 1 (pilot):

started

▶ Experiment 2 (with a contextual phrase):

owner   The dairy owner

Speed

Comprehension

Passage reading accuracy

Word Transfer

started

Word reading accuracy

Slide 1:

Analysis

Visual analysis

Effect size analysis

Statistical Analysis → Applied for experiment 2 through systematic randomization

Slide 2:

Wampold-Wampold method of randomization (1986)

Kay? Ed? Jo? Al?

Kay? Ed? Jo? Al?

Kay? Ed? Jo? Al?

Kay? Ed? Jo? Al?

Time (days)
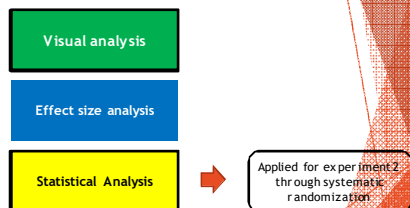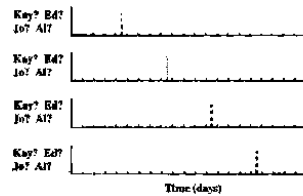
Ferron, J., & Sentovich, C. (2002). Statistical power of randomization tests used with multiple-baseline designs. *The Journal of Experimental Education, 70*(2), 165-178.

Statistical Analysis

Slide 3:

Statistical Analysis

P1? P2? P3? P4? P5?

P1? P2? P3? P4? P5?

P1? P2? P3? P4? P5?

P1? P2? P3? P4? P5?

P1? P2? P3? P4? P5?

Time (days)

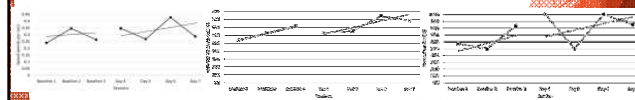120 possibilities (5×4×3×2×1) → P value

Slide 4:

Results: Experiment 1

Word reading: accuracy and transfer → Visual analysis
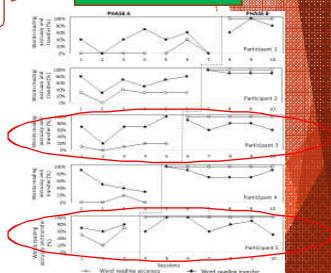
Passage reading: accuracy, speed, and comprehension → Visual analysis

Slide 5:

Results: Experiment 2

Visual analysis

Word reading: accuracy and transfer

Statistical Analysis
Word reading accuracy: 0.01
Word reading transfer: 0.05

Slide 6:

Results: Experiment 2

Passage reading: accuracy, speed, and comprehension

Statistical Analysis
Passage reading accuracy: 0.54
Passage reading speed: 0.38
Reading comprehension: 0.41

Visual analysis
Within phase variability
Between phase overlap
Ceiling effects

Conclusion

Passage reading: accuracy, speed, and comprehension
- Inconclusive outcomes for Exp 1 and Exp 2.

Word reading
- Accuracy: Exp 1 and Exp 2 found large different in word reading accuracy.
- Transfer: Exp 1 didn't show transfer Exp 2 did show transfer for the majority.

Maintenance
- 61-83% of trained words maintained up to three weeks after training.

Central contributions

Research practice

- The rarely applied Wampold-Wampold method of randomization is appropriate to support visual analysis
  - Doesn't detect individual responsiveness.
  - Prevents the obtainment of a stable baseline.

Classroom practice

- 10-15 words can be acquired maintained through a 15-20 minute training session.
- A contextual phrase helps to allow in-text transfer of these trained words.
- Individual differences are a factor for HFW training.