

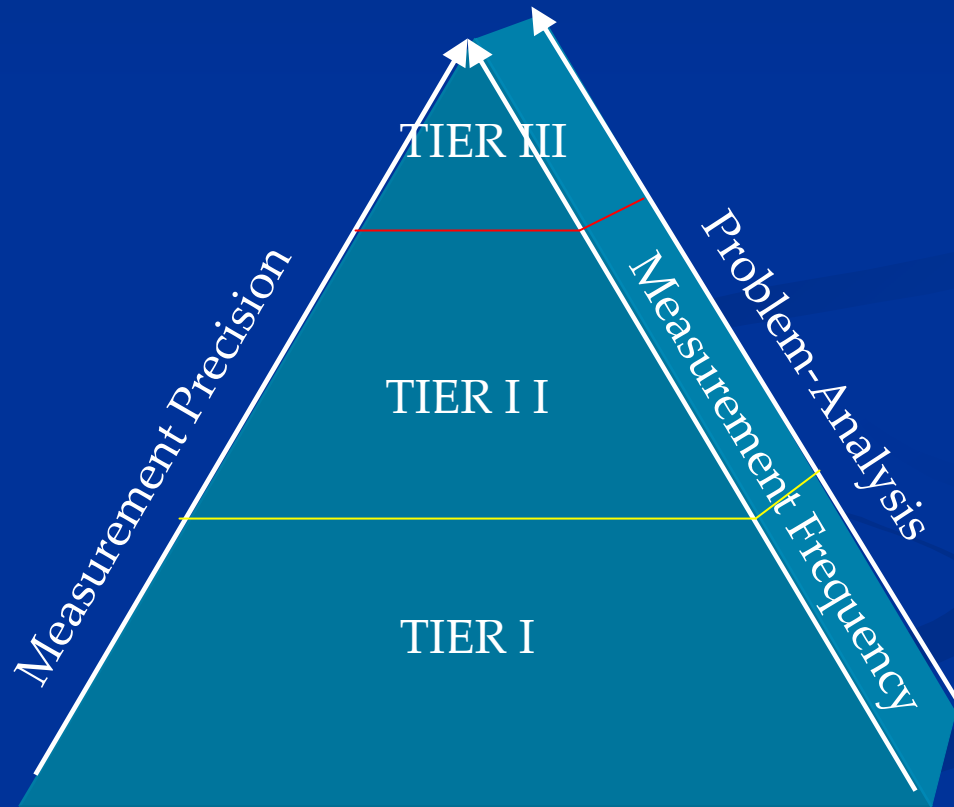
Academic Interventions for RtI: The stuff with which to solve problems

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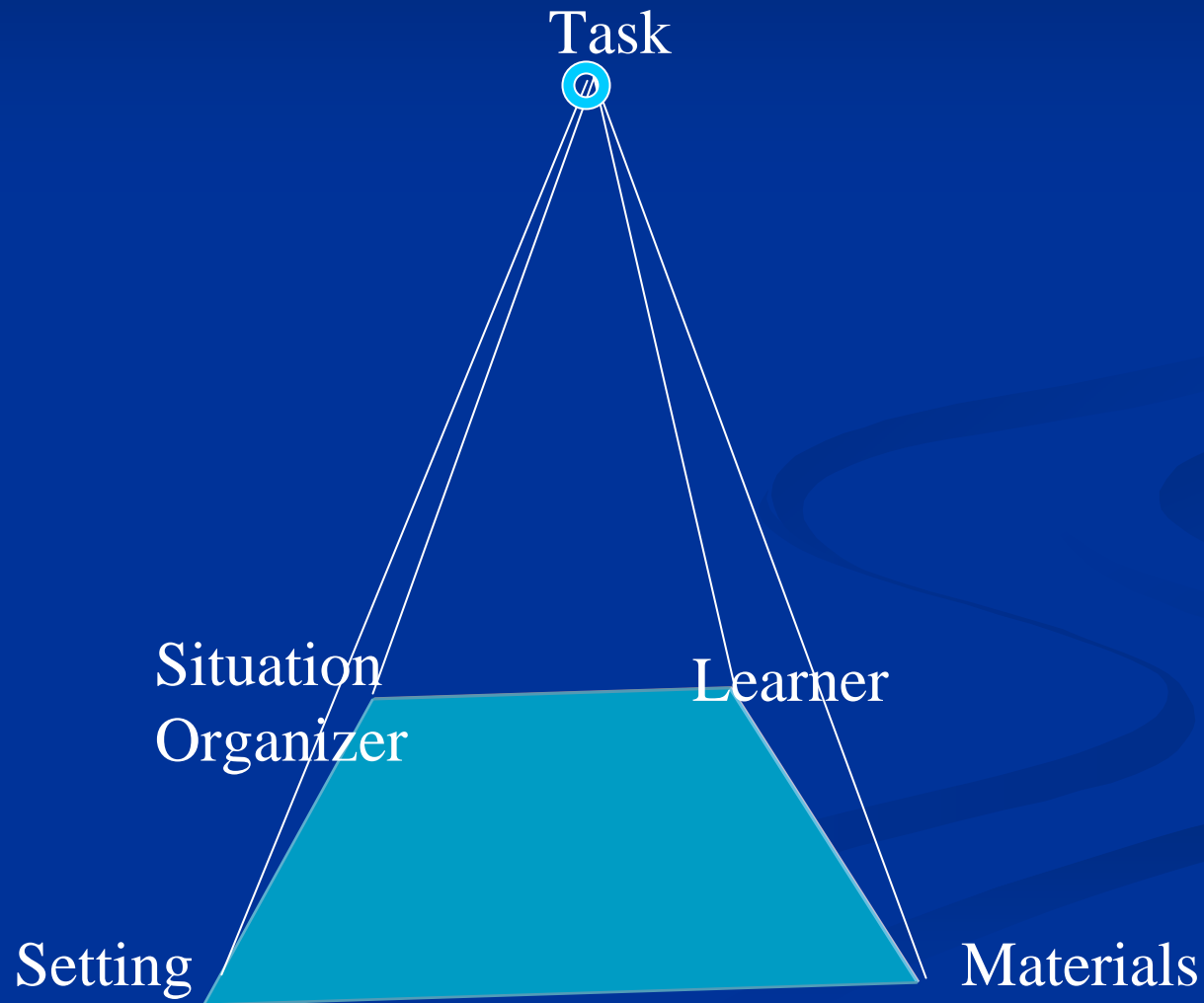
RTI and Problem-Solving



Success is easy.

Failure is complicated.

Context of Learning

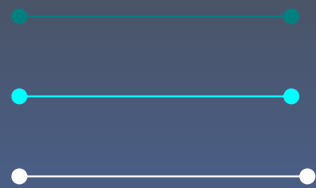


What makes an intervention effective????

- Correctly targeted
- Explicit instruction
- Appropriate challenge
- Opportunities to respond
- Immediate feedback
 - With contingent reinforcers

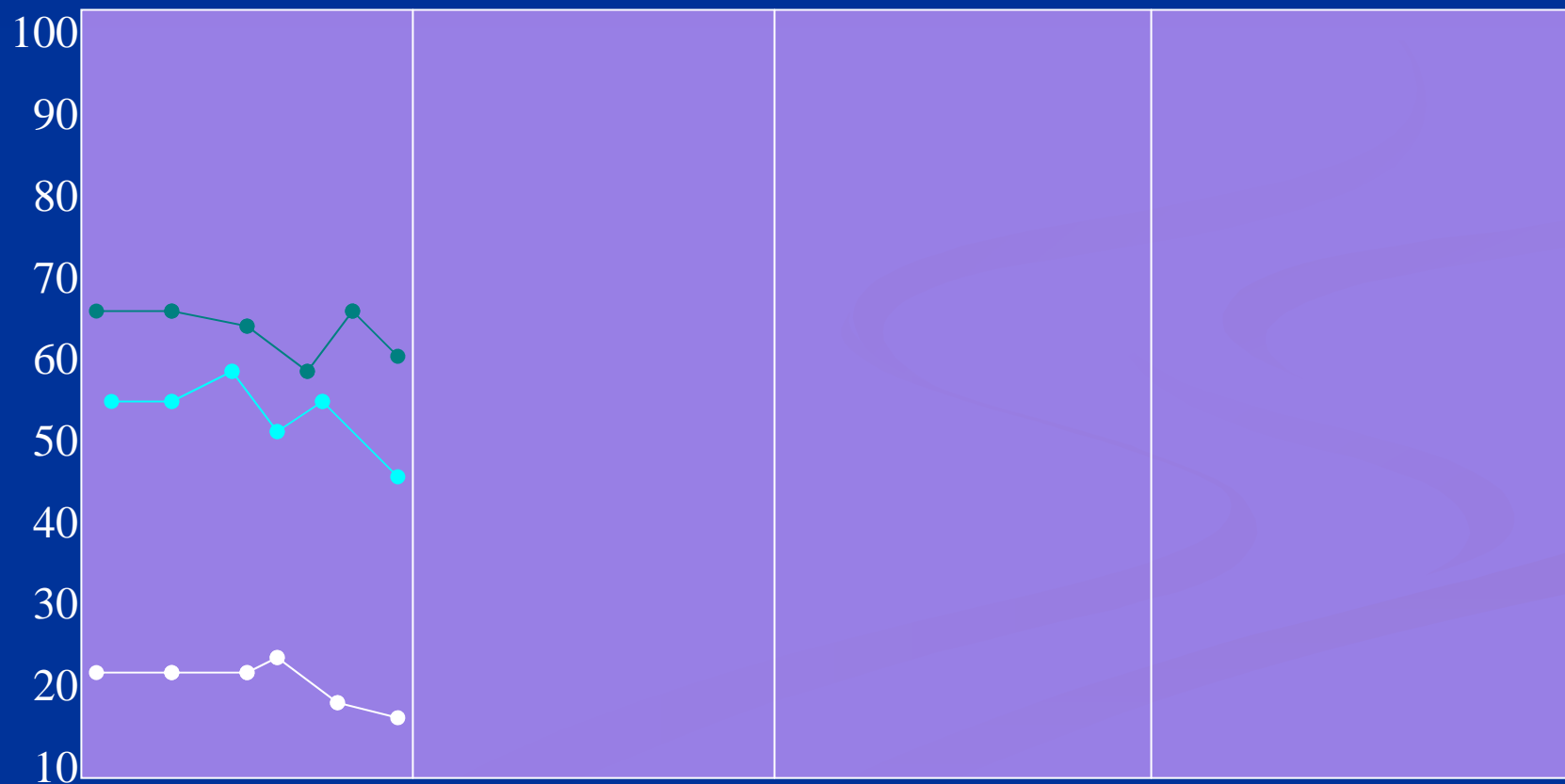
Burns, VanDerHeyden, & Boice (2008). Best practices in implementing individual interventions. In A. Thomas & J. Grimes (Eds.) *Best practices in school psychology* (5th ed.). Bethesda, MD: National Association of School Psychologists.

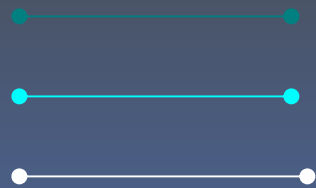
Long radians were forming when Matthew arrived. He tried to phindate the amount of time it would take to get to the convorster. Vort it would be too long, plast he would miss the game. He vraxated for a moment until the raidans became even longer. He decided that he would ordrul in the raidan opet see vort it would start moving more quickly. No sooner had he started fleedjuul, when it began opet mostulalag quite hard. Matthew became disgusted, zipped up his ornaforger, and walked back to this car. He drove home ov the mostul. By the time he put the car in the garage, the mostul was droim, and the faedos was out. Matthew was doubly disgusted now. Sullenly, he went inside to watch the game. He turned on the television set but nothing happened. Matthew said to himself, “What a lousy frof.”



Task Completion
On-Task Behavior
Task Comprehension

Baseline

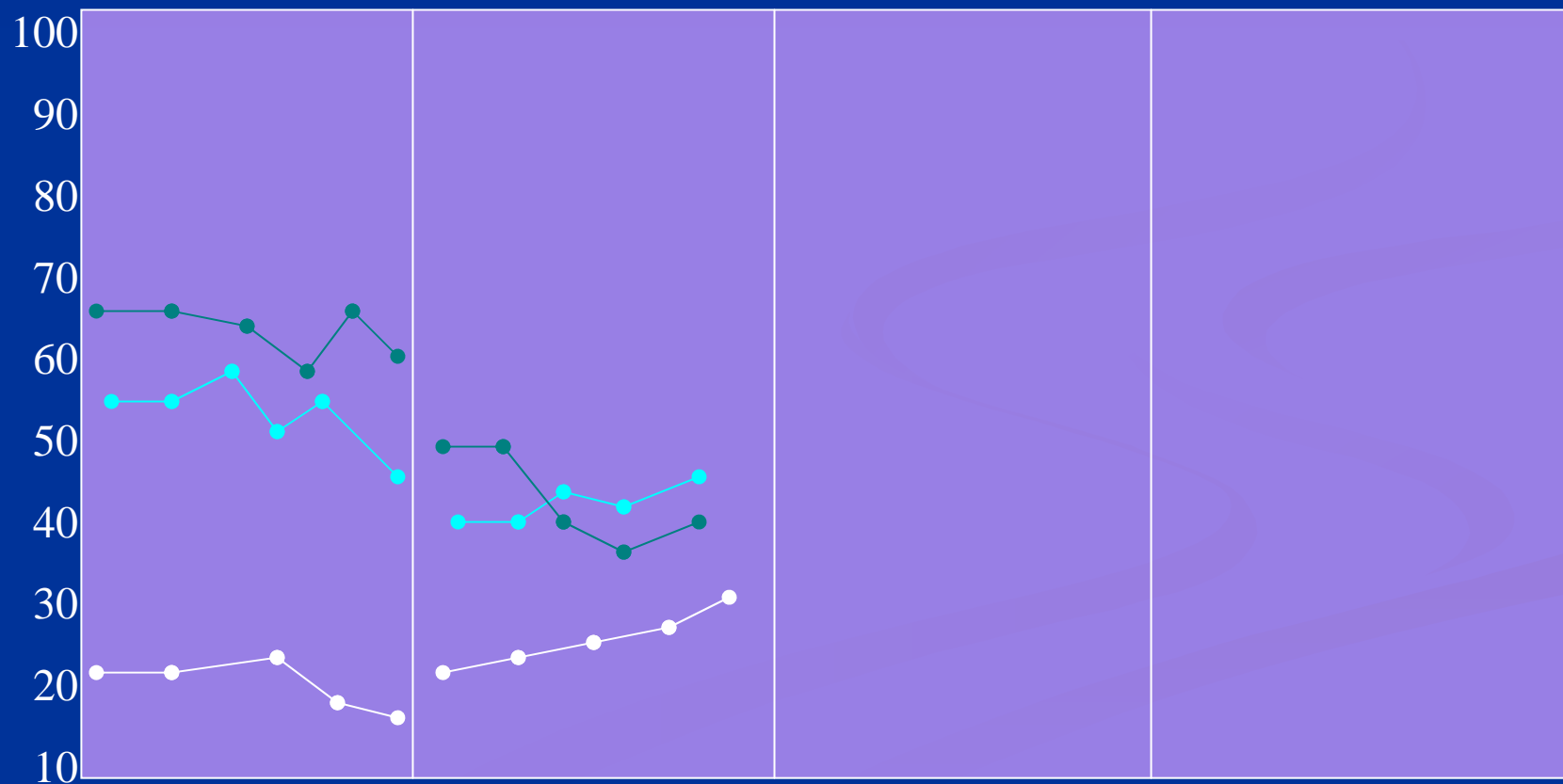


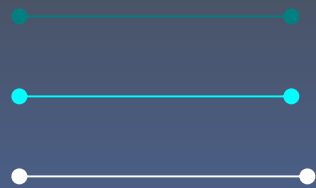


Task Completion
 On-Task Behavior
 Task Comprehension

Baseline

Frustration



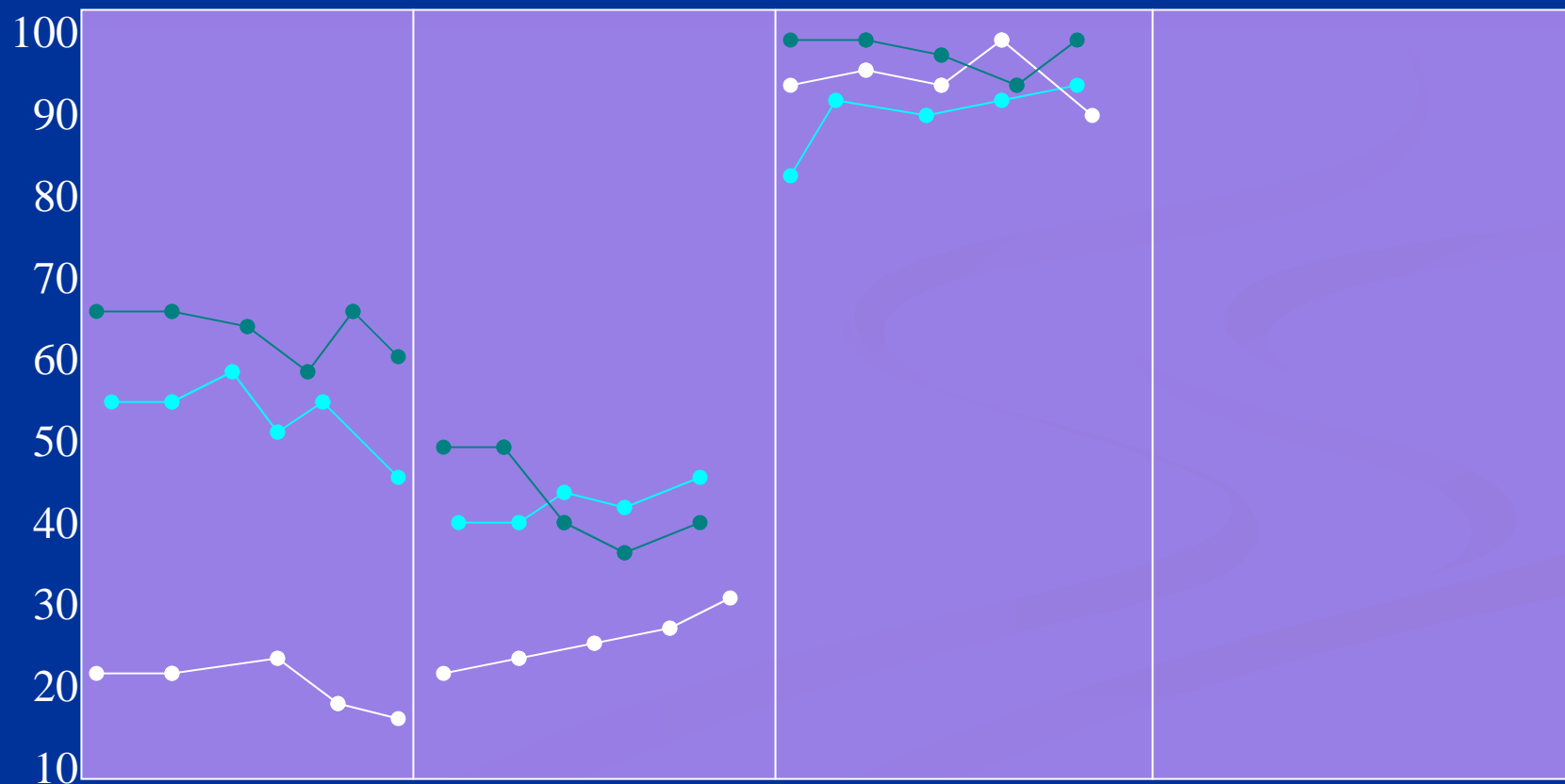


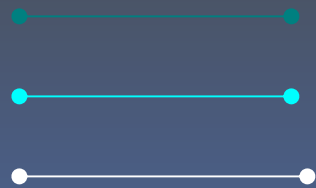
Task Completion
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Baseline

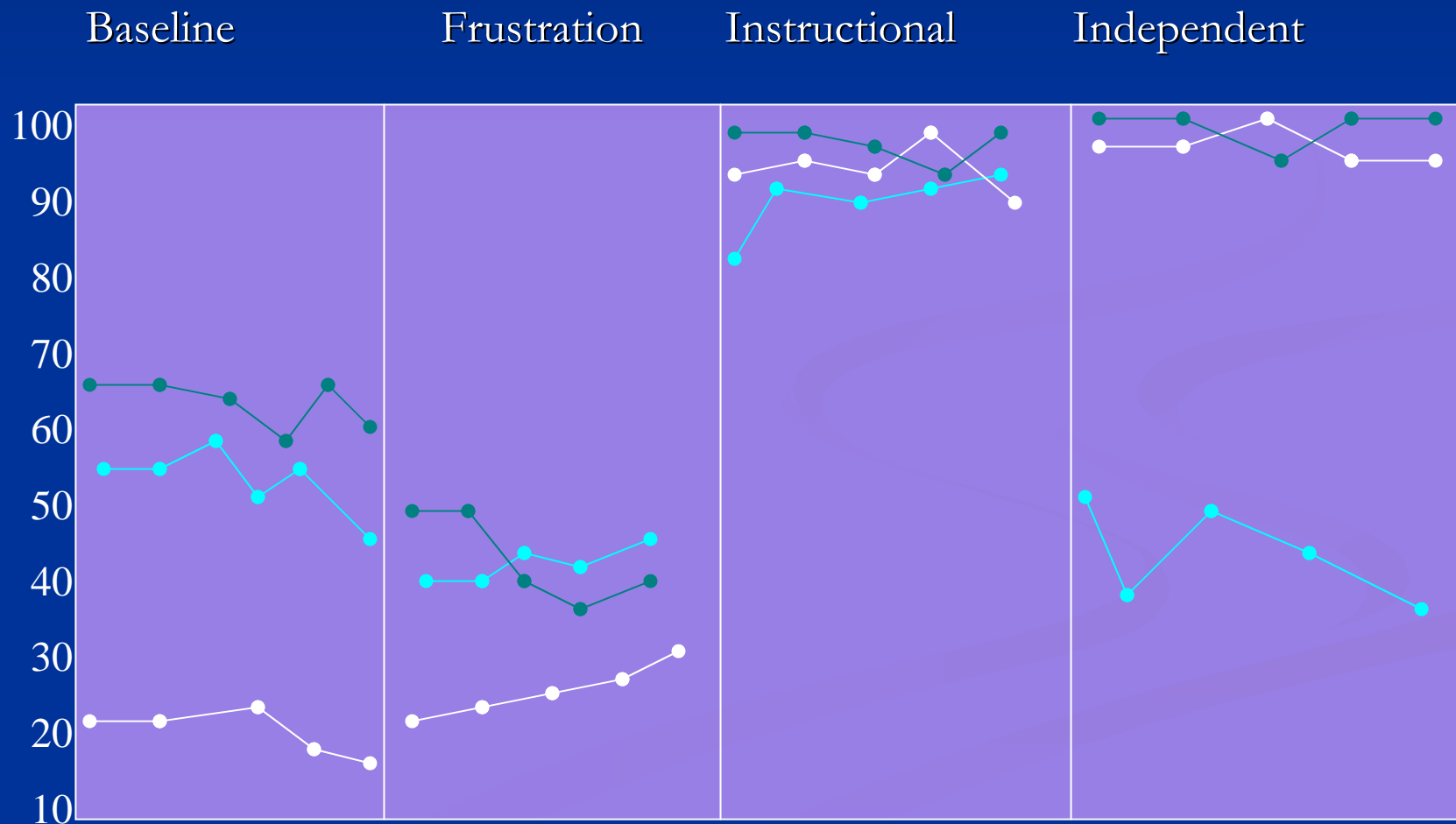
Frustration

Instructional





Task Completion
 On-Task Behavior
 Task Comprehension



Instructional Match

- 93% to 97% known for reading (Gickling & Armstrong, 1978; Treptow, Burns, & McComas, 2007).
- Improves student learning (Burns, 2002; 2005; 2007; Daly, Witt, Martens, & Dool, 1997; Shapiro, 1992).
- Match between student skill and instructional material is an important functional variable for student learning within response-to-intervention (Gresham, 2001).

Empirically Derived Fluency Criteria

- Mean starting dc/m for high responders
- 2nd and 3rd grade
 - 14 to 31 Digits Correct/Min
- 4th and 5th grade
 - 24 to 49 Digits Correct/Min
- Percent agreement was 69.0% agreement for second and third graders and 92.4% for fourth and fifth graders.

CORRECTLY TARGETED

Instructional Hierarchy: Stages of Learning

	Acquisition	Proficiency	Generalization	Adaption
Learning Hierarchy	<ul style="list-style-type: none"> ■ Slow and inaccurate 	<ul style="list-style-type: none"> ■ Accurate but slow 	<ul style="list-style-type: none"> ■ Can apply to novel setting 	<ul style="list-style-type: none"> ■ Can use information to solve problems
Instructional Hierarchy	<ul style="list-style-type: none"> ■ Modeling ■ Explicit instruction ■ Immediate corrective feedback 	<ul style="list-style-type: none"> ■ Novel practice opportunities ■ Independent practice ■ Timings ■ Immediate feedback 	<ul style="list-style-type: none"> ■ Discrimination training ■ Differentiation training 	<ul style="list-style-type: none"> ■ Problem solving ■ Simulations

Haring, N. G., & Eaton, M. D. (1978). Systematic instructional procedures: An instructional hierarchy. In N. G. Haring, T. C. Lovitt, M. D. Eaton, & C. L. Hansen (Eds.) *The fourth R: Research in the classroom* (pp. 23-40). Columbus, OH: Charles E. Merrill.

Phonemic Awareness

Phonics

Fluency

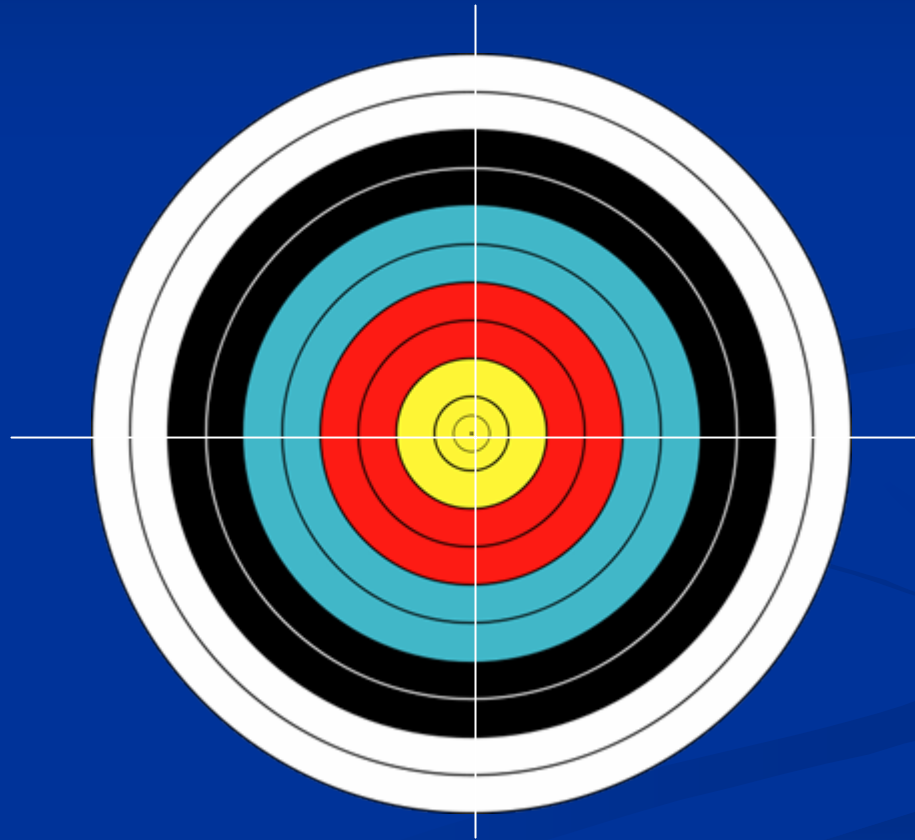
Vocabulary

Comprehension

Acquisition Proficiency Generalization Adaptation

Proficiency

Intervention – Bullseye!



Comprehension



Assess Fluency
Fluent? (ORF)



Assess Phonetic Skills
Adequate? (LNF, LSF, NWF)



Fluency Intervention
Accuracy or Proficiency



Assess Phonemic Awareness
Adequate? (PSF, ISF, CTOPP)



Phonics Intervention
Accuracy or Proficiency



Phonemic Awareness Intervention

Peter

- Second Grade
- NWEA test this fall, he scored at the 4th percentile for reading
- Reading fluency score was 13 WRC/M
 - Well below average range.
- Participates in Read Naturally, (where he is placed at grade level 1.0)

Peter - Phonics

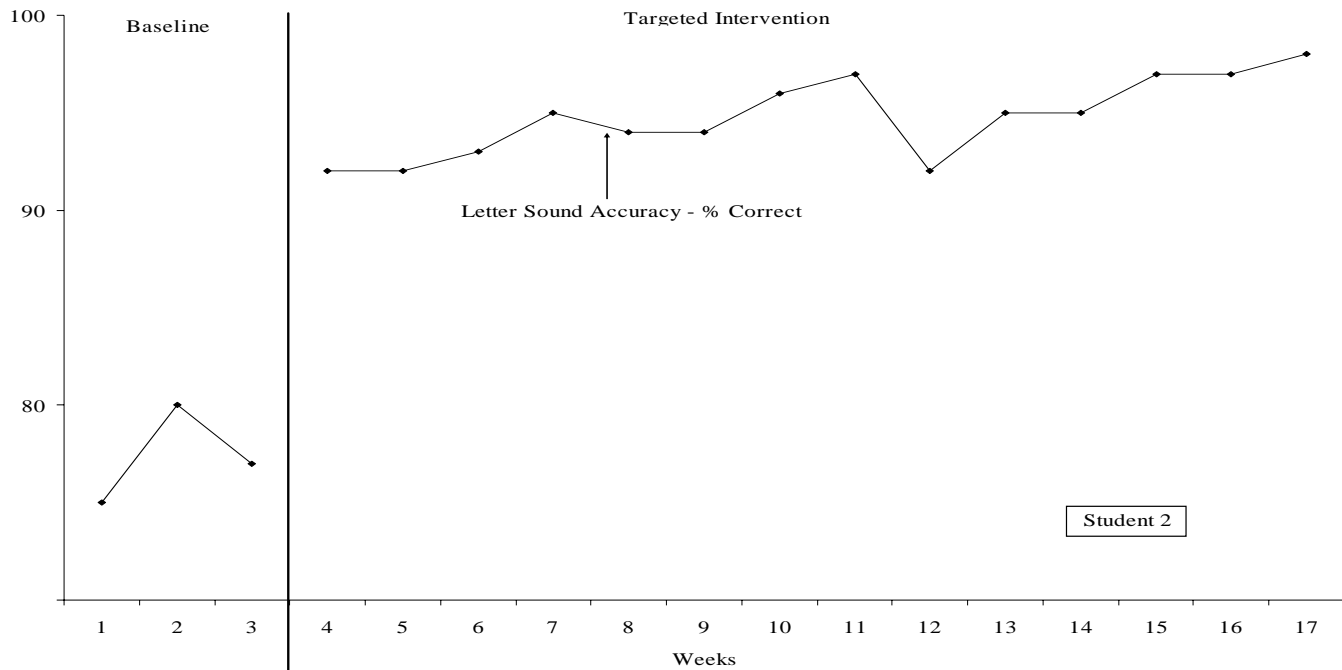
- ORF: 13 wcm with 60% accuracy
 - Below cut scores, so assess Phonics

- Phonics:
 - NWF: 24 words/minute with 67% known
 - 2nd grade rate cut score is 30 words/min
 - LSF: 34 with 88% accuracy
 - Cut score is 35 letters/min

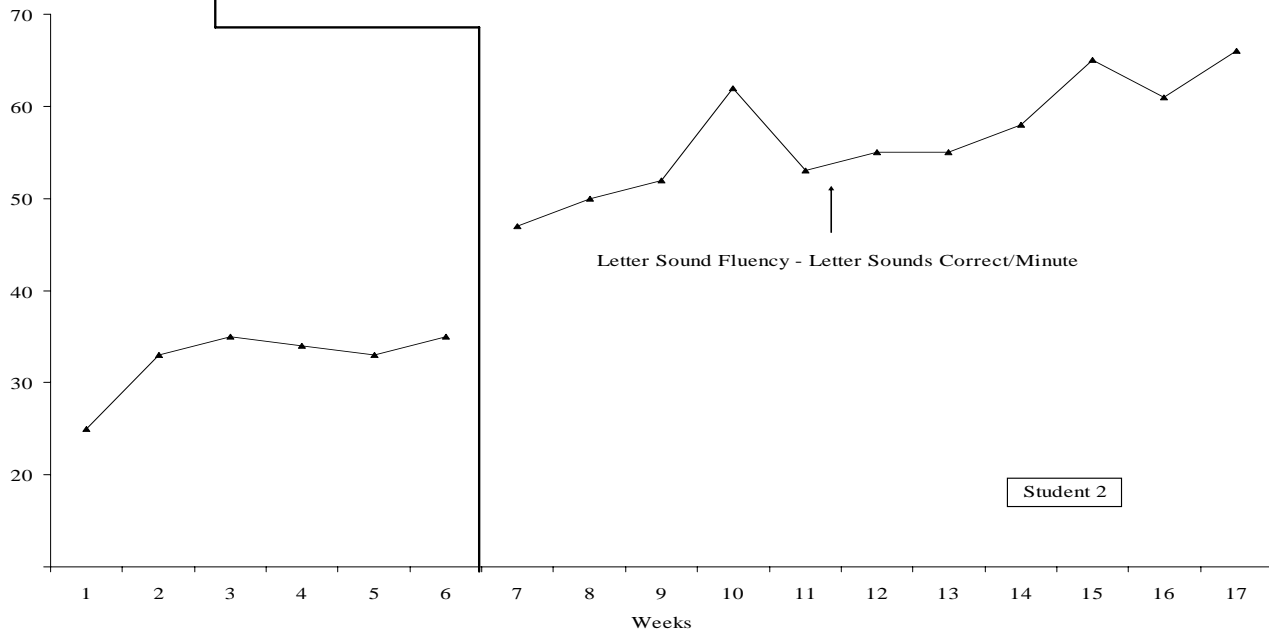
→ Below cut scores, so assess Phonemic Awareness

- Phonemic Awareness
 - PSF: 38 with 93% accuracy
 - Cut score is 35 sounds/min

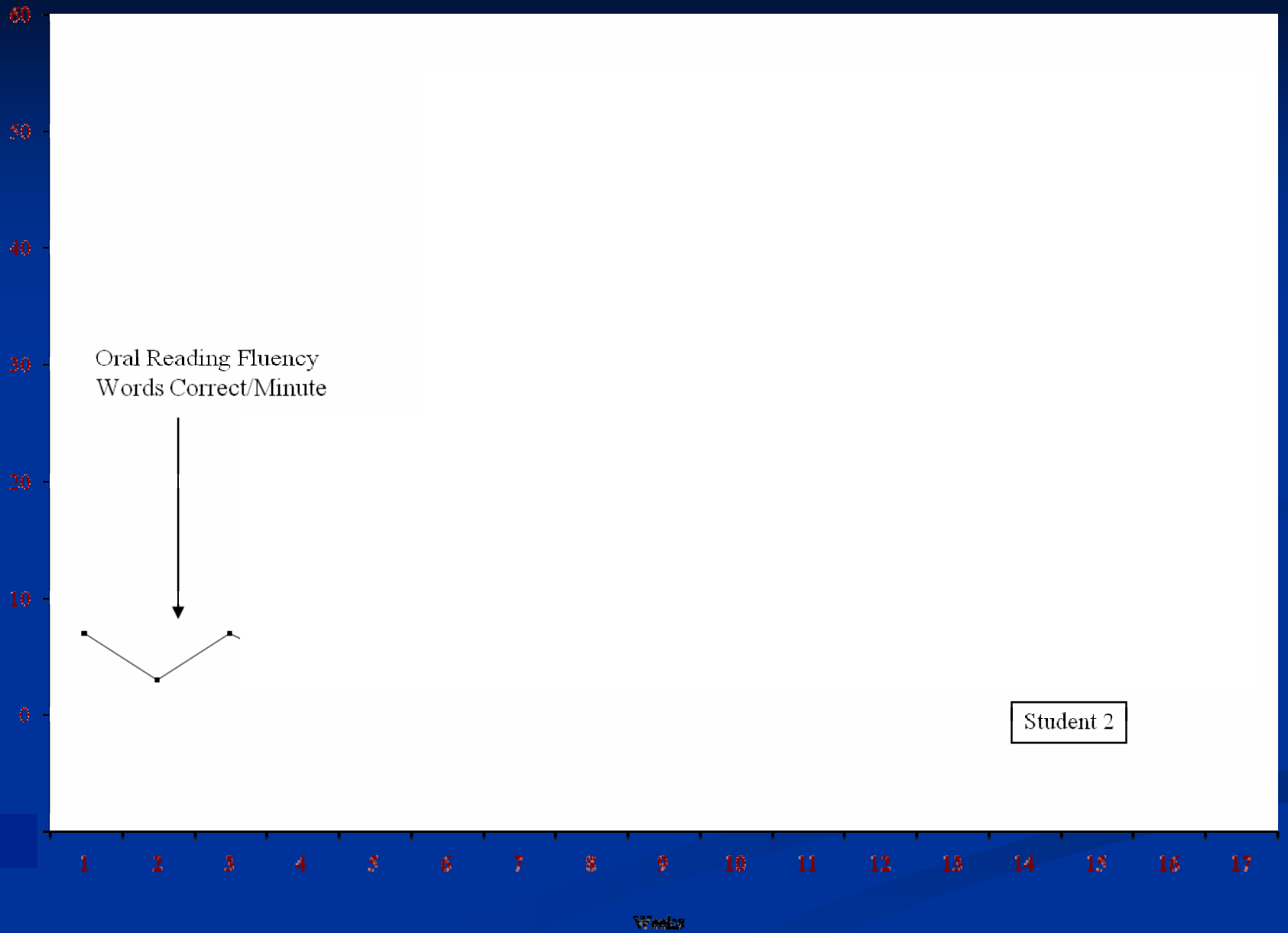
→ Peter should receive Phonics Acquisition intervention

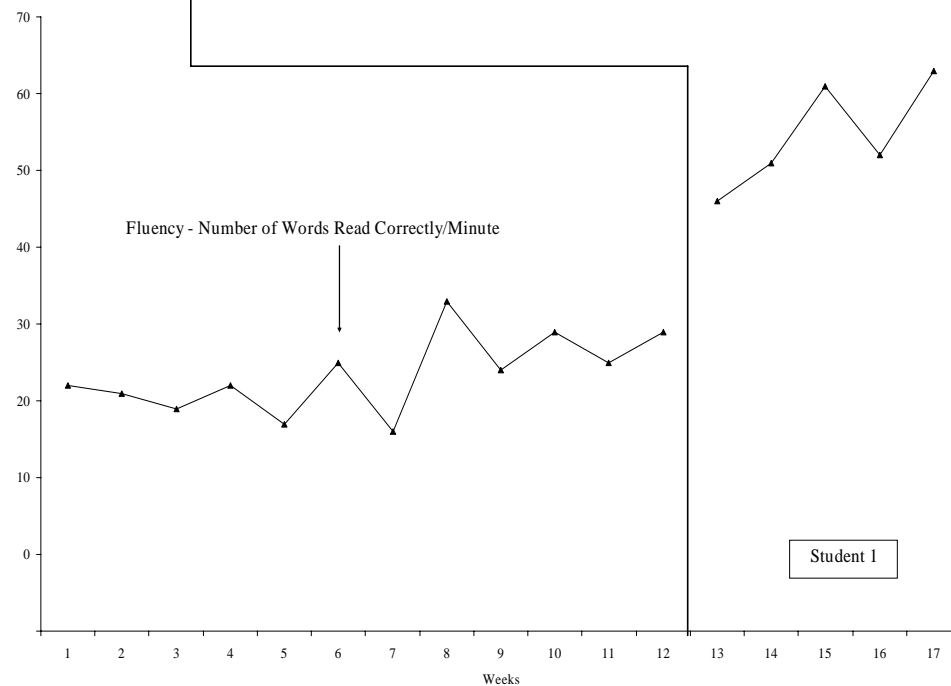
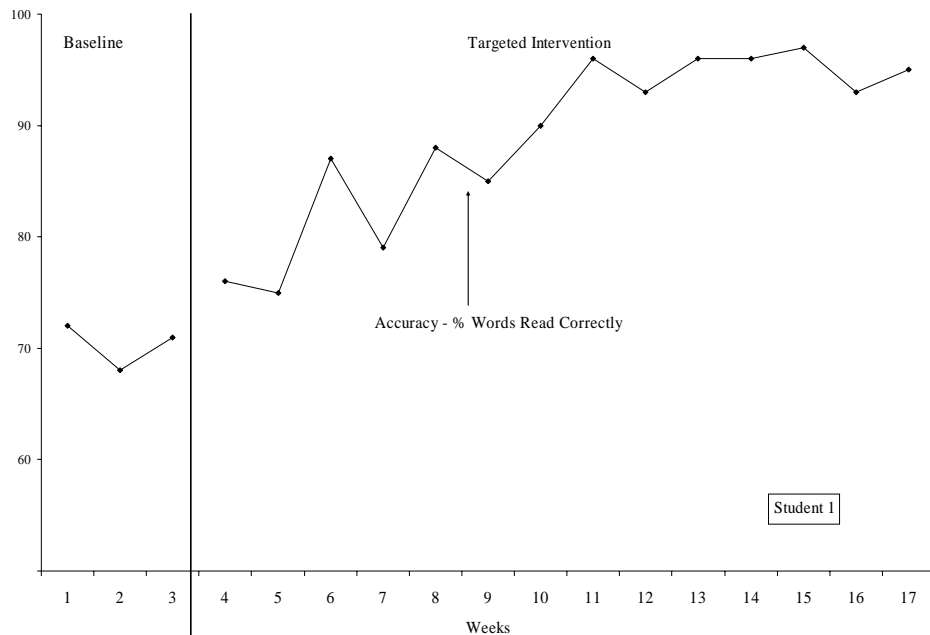


Student 2



Student 2

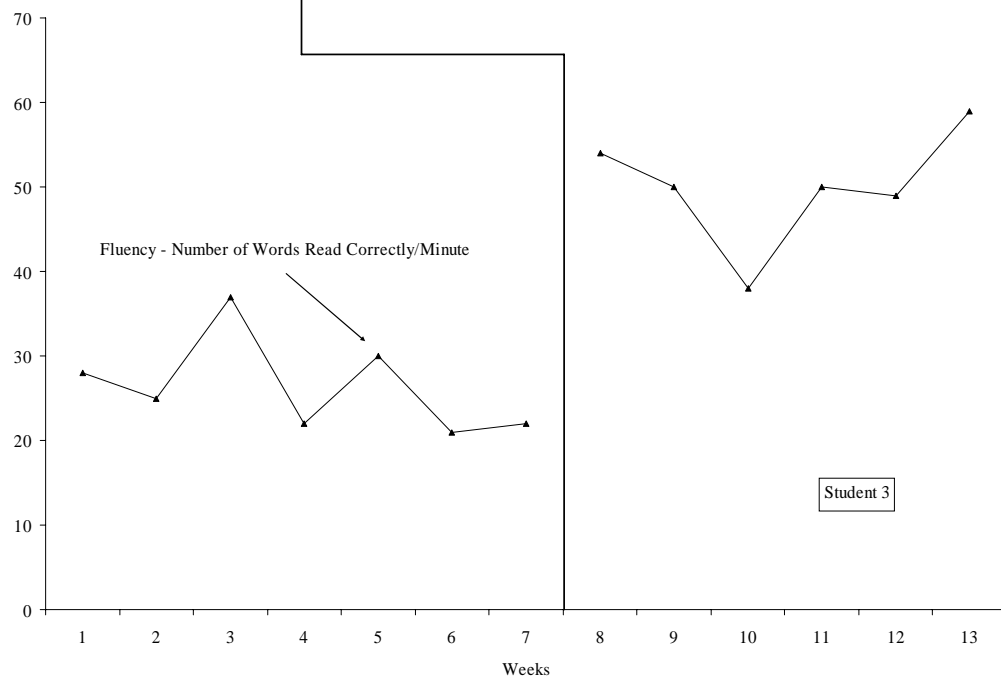
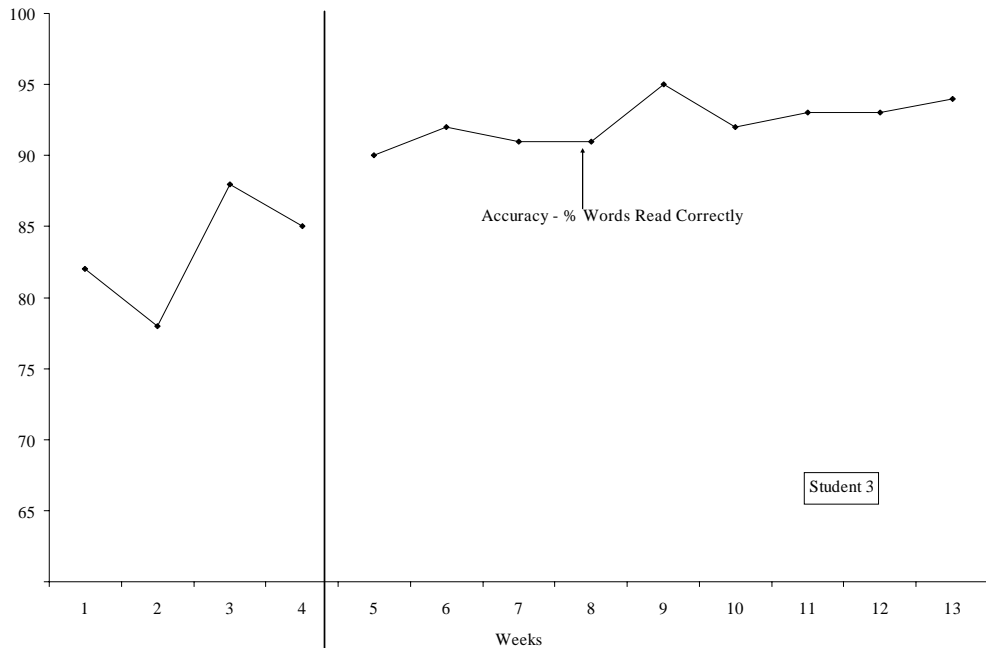




3rd grade male

Median fluency score was 30 words/minute with between 68% and 72% correct (below 10th percentile)

Nonsense word fluency = 65 sounds (50 is established) correct/minute with 94% accurate



3rd grade male

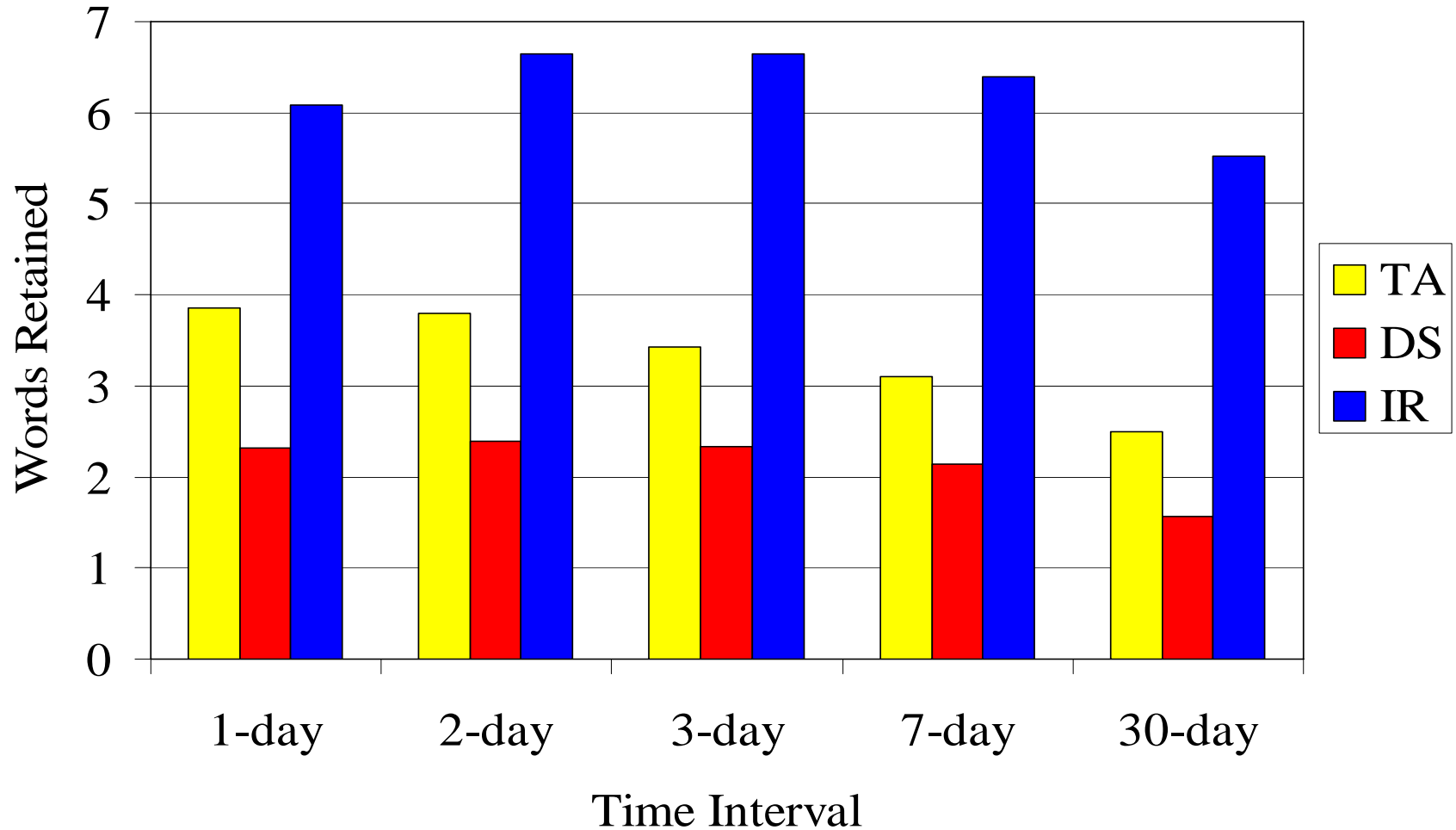
Scored below the 5th in reading

38 words/minute on grade level texts with 83.5% known

Nonsense word fluency = 62 correct sounds per minute with 91% accuracy. (50 is established)

Learning Hierarchy	Phonemic Awareness	Phonics	Fluency
Acquisition	Explicit instruction in blending and segmenting (Blackman et al., 2001)	<p>Incremental Rehearsal with letter sounds (Tucker, 1989)</p> <p>Explicit instruction in letter sounds (Carnine et al., 2004)</p>	<p>Incremental Rehearsal for words (Burns, 2007)</p> <p>Listening passage preview (Rose & Sherry, 1984)</p> <p>Duet reading (Samuels)</p> <p>Phase drill (O'Shea, Munson, & O'Shea, 1984)</p>
Proficiency	Language & Listening (Adams et al., 1998)	Word boxes & word sorts (Joseph, 2000)	<p>Repeated reading (Moyer, 1982)</p> <p>Read Naturally</p>
Generalization	Discrimination and differentiation training		
Adaption	Problem-solving activities and simulations		

Mean Number of Word Retained






Correlation between retention and receptive vocabulary

	1 day	2 days	3 days	7 days	30 days
TA	.32	.27	.32	.23	.08
DS	.22	.25	.17	.16	.20
IR	-.16	-.13	.06	.04	-.07

These results are “astounding” (Daly & McCurdy, 2002; p. 457).

Phase of Learning

						
Conceptual Knowledge	Acquisition	Proficiency	Generalization	Adaption		
Examples of appropriate instructional activities	Explicit Instruction in principles Modeling with math manipulatives Immediate feedback	Independent practice Identifying examples in environment Delayed feedback with contingent reinforcement	Instructional games with different stimuli Use stimuli in applied manner such as solving word problems 	Use concepts to solve problems in daily living 		
		Procedural Knowledge	Acquisition	Proficiency	Generalization	Adaption
		Examples of appropriate instructional activities	Explicit instruction in task steps Modeling with written problems Immediate feedback	Independent practice with written skill Delayed feedback with contingent reinforcement	Apply number operations to applied problems Complete number problems in environment	Use numbers to solve problems in daily living



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