

***Employing Multiple Tests to Assess Overselective
Attention to Words in Young Children***

Nancy H. Huguenin, PhD

Behavior Analysis & Technology, Inc.

Groton, MA

***Presentation at the 2011 Annual Convention of the
Association for Behavior Analysis International, Denver, CO***

Purpose

- **Overselective attention is an attentional deficit in which the student only attends to restricted portions of complex stimulus displays. It was determined in this investigation if overselective attention occurred in young children when word discriminations were presented. This has important educational relevance because assessing whether a child can attend to individual letters within whole words is critical for reading instruction.**
- **In order to accurately determine the presence of overselective attention, a fine-grained analysis of the control exhibited by the stimulus elements of compound cues is needed. Computer touch-screen technology was employed in this study to automatically administer multiple stimulus-control testing procedures to permit greater precision in identifying the presence of overselective attention in young children when words were presented.**
- **By assessing the visual attention to words of young children under a variety of test conditions, the intensity of overselective attention can also be assessed and not merely the presence of overselective attention as previous investigations have done. Multiple testing procedures can also discover individual differences in how children attend to words, which might not be revealed if only a single testing procedure was employed.**

Method

- Four young boys (6-7 years of age) of typical development participated. A Macintosh computer automated the sessions, and a touch screen was fitted to the monitor screen.
- Each child was presented word discriminations in which the S+ and S- words were presented simultaneously on the computer screen. During the word-discrimination task, the children were required to select the S+ word to obtain reinforcement. If the S- word was selected, reinforcement was not provided (See Fig. 1).
- Following criterion accuracy for each word discrimination, stimulus-control tests were administered. One test consisted of recording response choice when letters comprising the S+ and S- words were presented separately. In a second test, word choice was determined when the S+ word appeared with three similar comparison words that differed from the S+ word by only one letter (See Fig. 2 & Fig. 3).
- The purpose of the single-letter and word test trials was to determine how many letters of the word discriminations the children were attending to when they achieved criterion accuracy. Because a touch screen was employed, which letters the children touched each time word pairs appeared on the computer screen was also recorded. In addition, both nondifferential and differential reinforcement were utilized during the single-letter and word test trials to determine the effect of the type of reinforcement contingency on test performance.

Figure 1

(+) S A T			(-) M O P		
B	E	D	R	U	G

Figure 2

Letter-Discrimination Test

S	M
A	O
T	P

Word-Discrimination Test

S	A	T	M	A	T
S	A	T	S	O	T
S	A	T	S	A	P

Figure 3

Letter-Discrimination Test

B	R
E	U
D	G

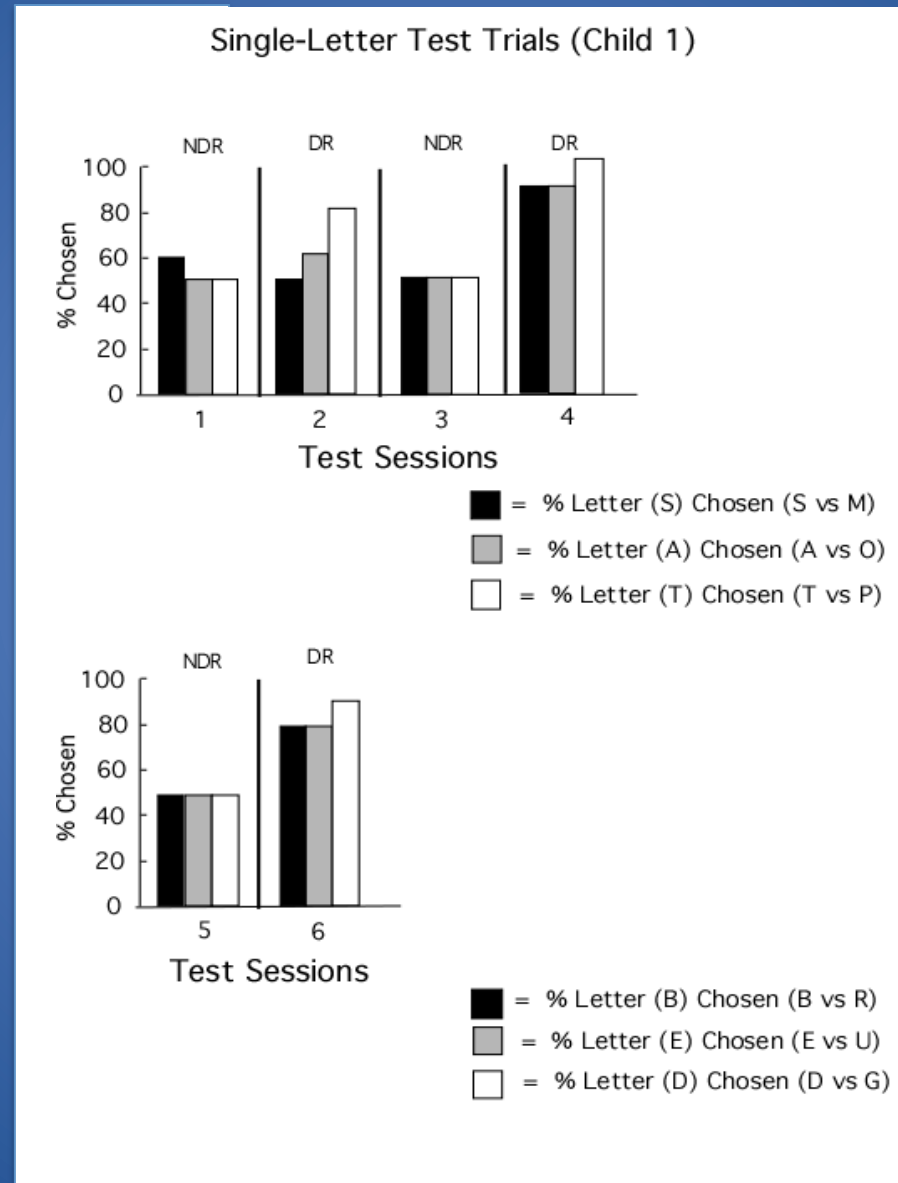
Word-Discrimination Test

B E D	R E D
B E D	B U D
B E D	B E G

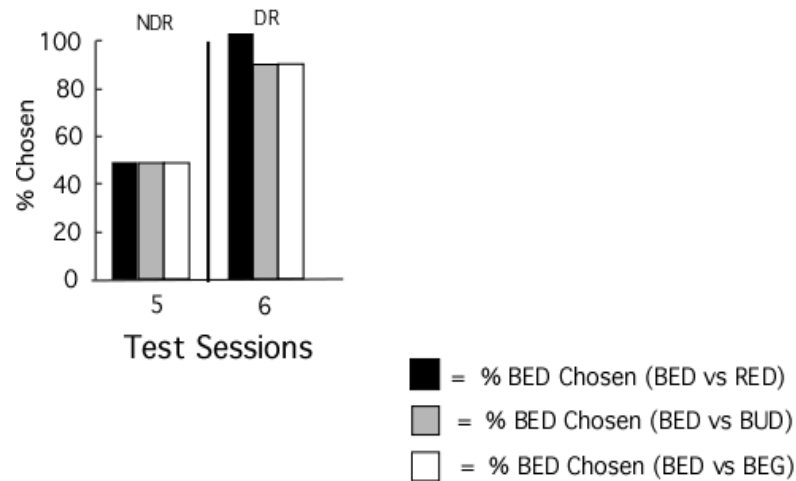
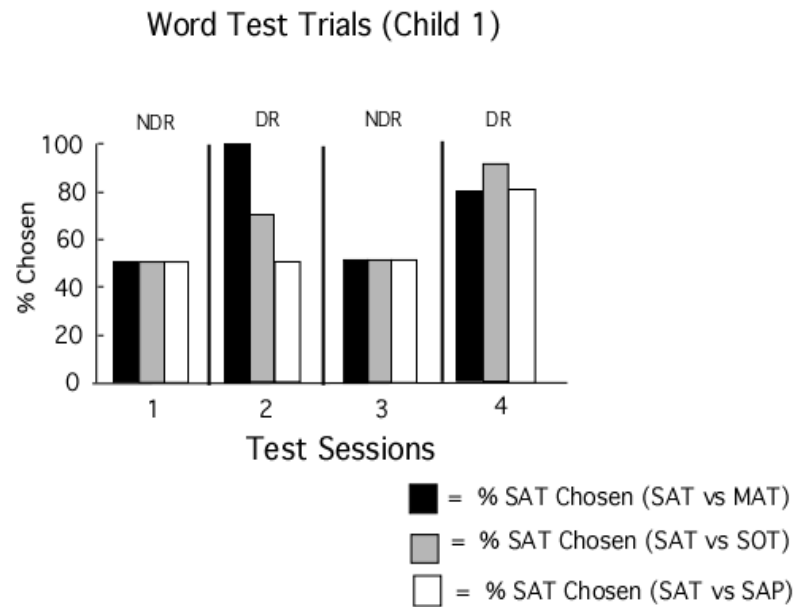
Results & Discussion

- Utilizing computer touch-screen technology to administer multiple stimulus-control tests revealed individual differences in how young children of typical development attended to words.
- Although three of the four boys demonstrated overselective attention when word discriminations were presented, they differed in the degree of their overselective attention.
- One child only exhibited overselective attention in the single-letter and word test trials when a differential-reinforcement contingency was utilized. Two children, in contrast, displayed overselective attention when both nondifferential and differential-reinforcement contingencies were employed. Finally, the fourth child failed to demonstrate overselective attention during any of the test sessions. The response topographies measured by the touch screen showed, however, the occurrence of letter preferences for all four children.
- The effect of repeated testing on whether most children learned to attend to all three letters of training words depended on the type of reinforcement contingency utilized during the test trials. If a nondifferential-reinforcement contingency was employed, repeated testing for three children did not result in attention to all three letters of the S+ words. In contrast, although most children revealed overselective attention during the differential-reinforcement test trials, repeated testing with a differential-reinforcement contingency eliminated their overselective attention.

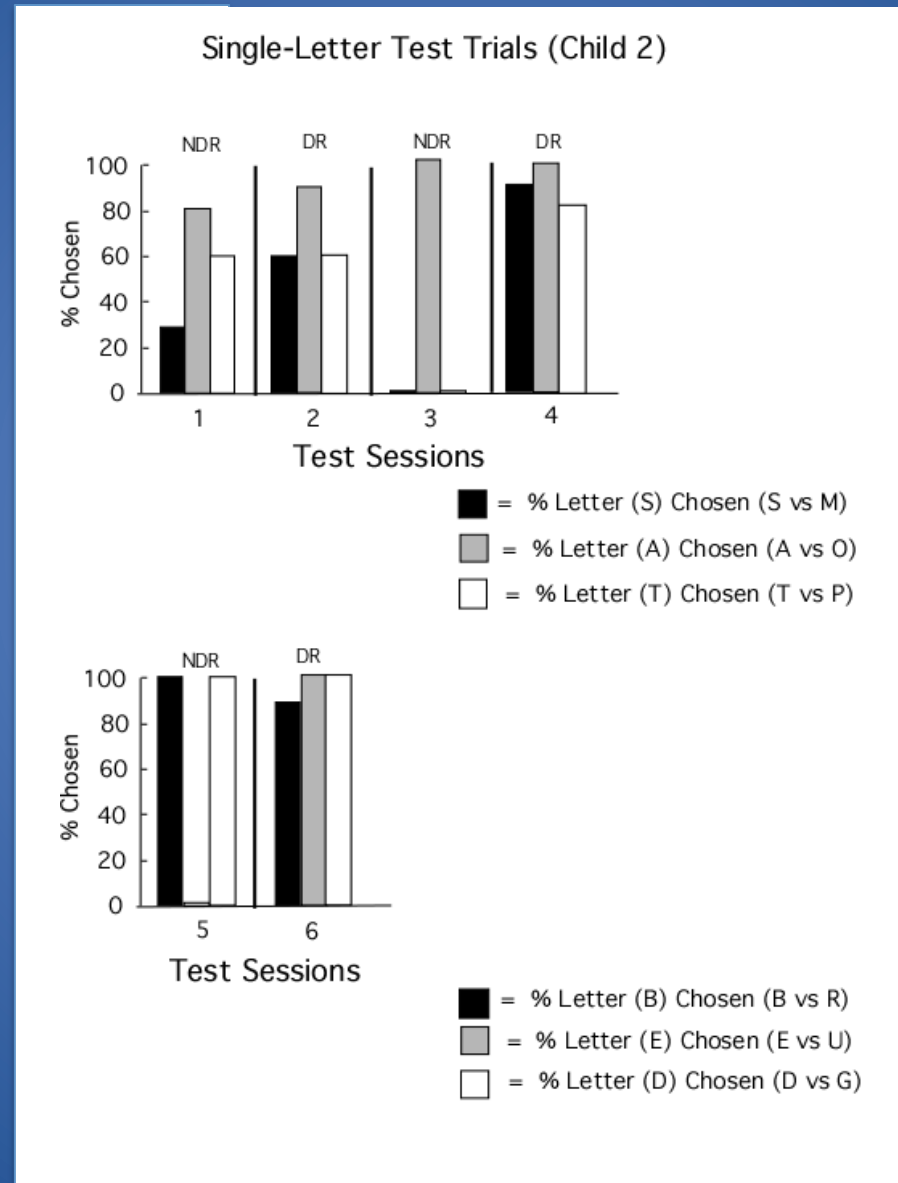
Results: Single Letter Test Trials (Child 1)



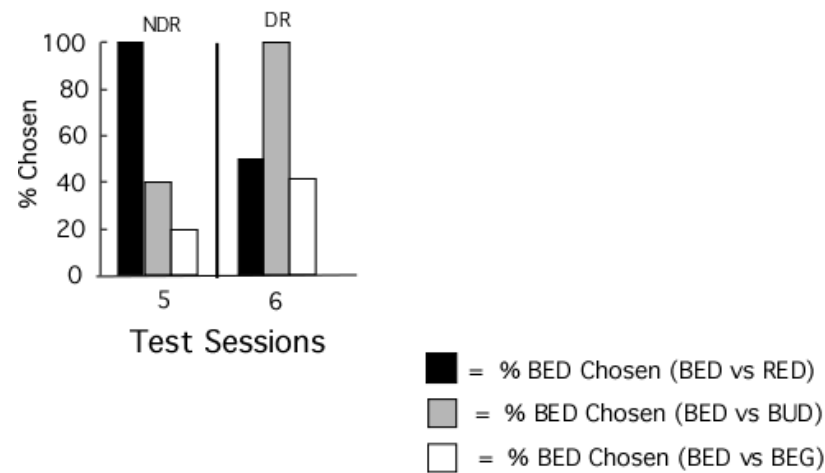
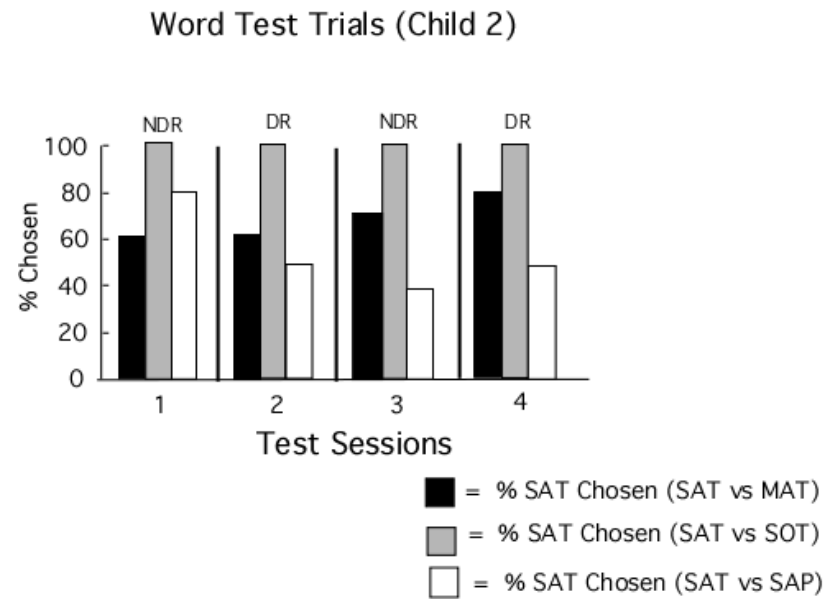
Results: Word Test Trials (Child 1)



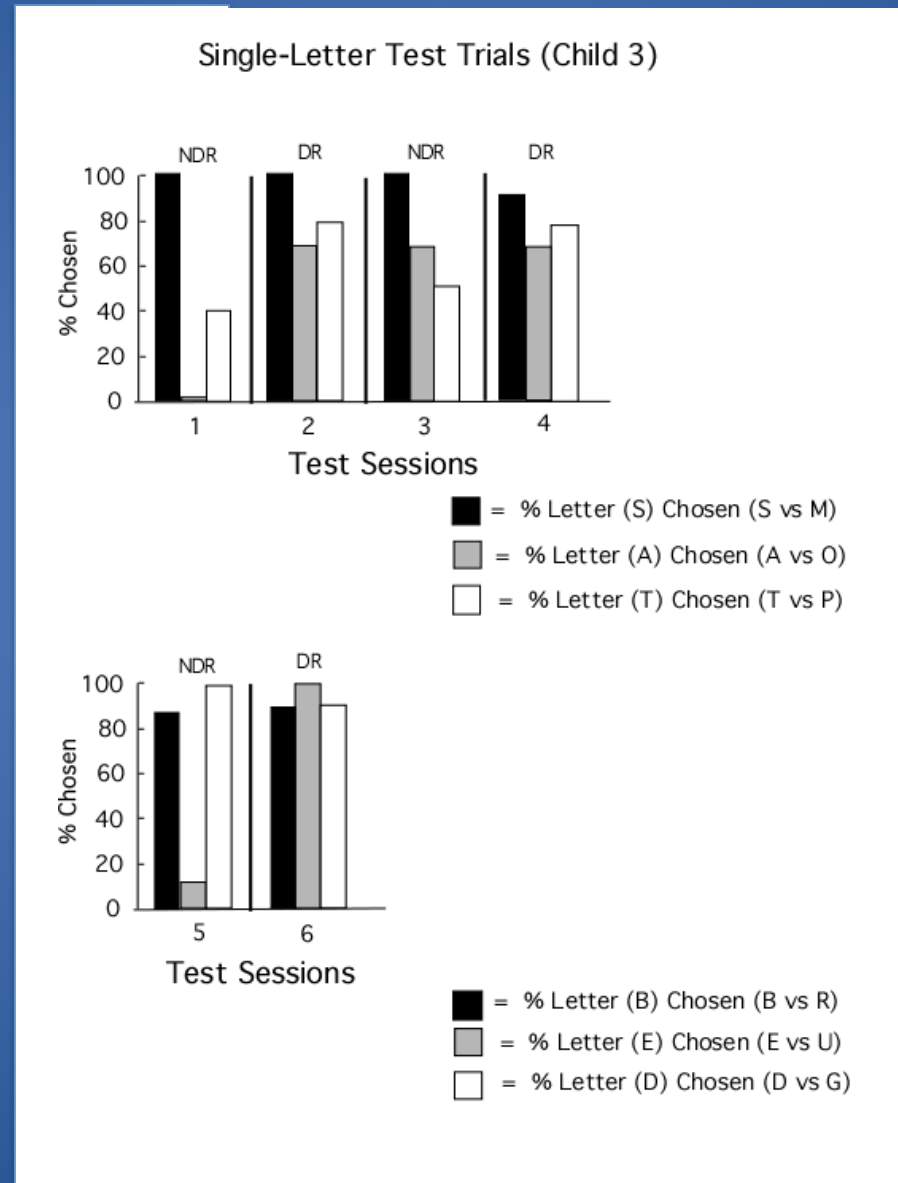
Results: Single Letter Test Trials (Child 2)



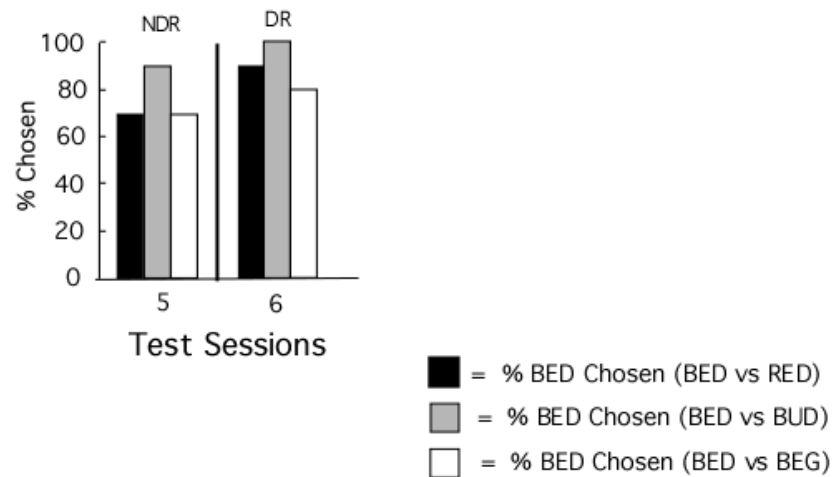
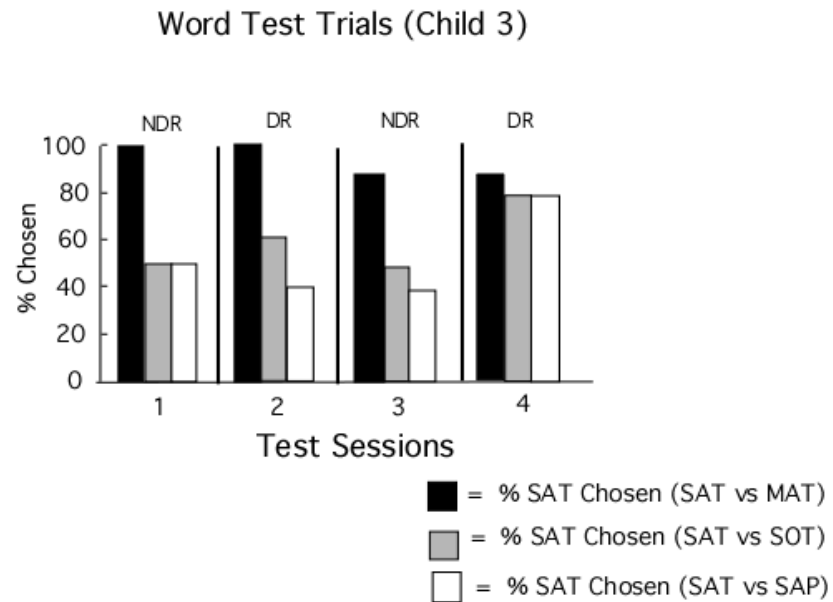
Results: Word Test Trials (Child 2)



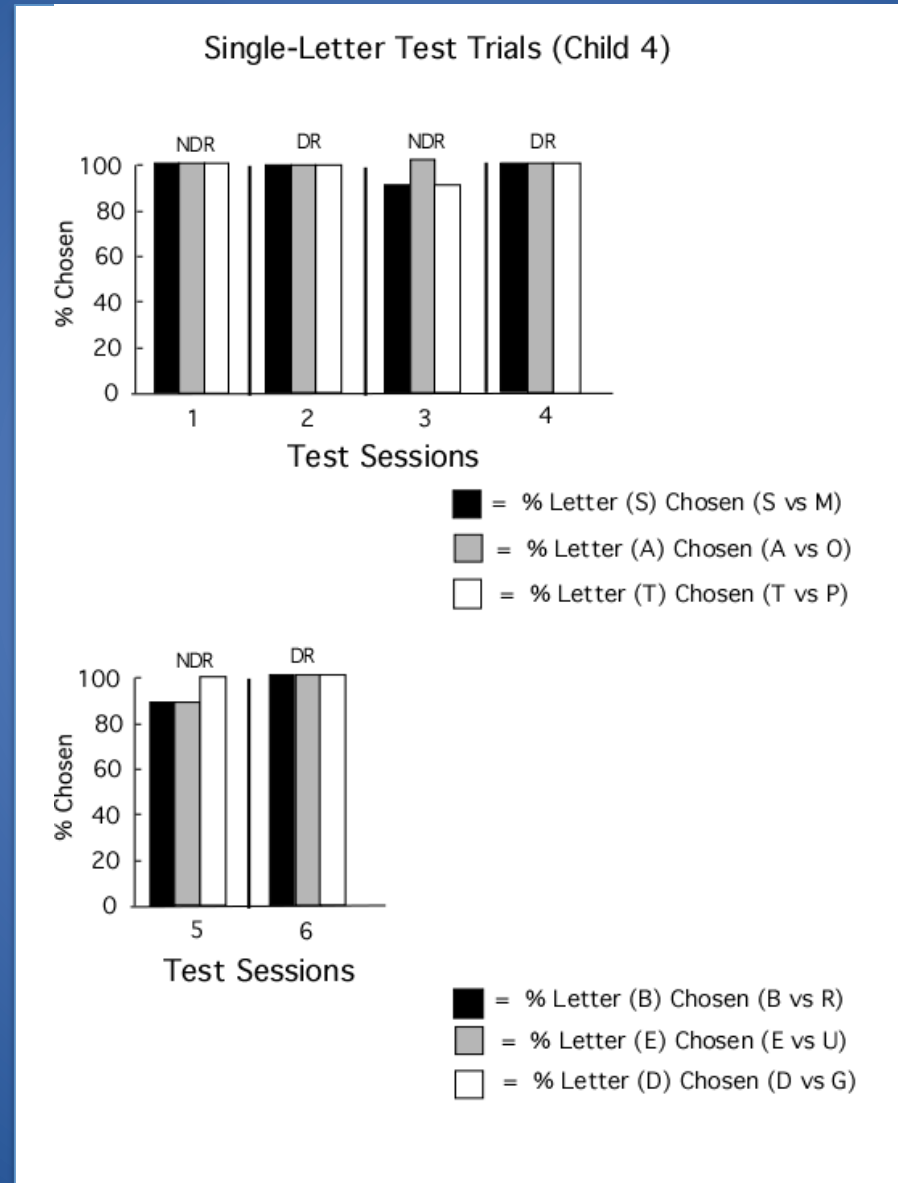
Results: Single Letter Test Trials (Child 3)



Results: Word Test Trials (Child 3)



Results: Single Letter Test Trials (Child 4)



Results: Word Test Trials (Child 4)

