Examining the Effects of the Collaborative Strategic Reading – High School Intervention on Adolescents With Autism Spectrum Disorders

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Research Question

What are the reading, behavioral, and social outcomes of implementing Collaborative Strategic Reading – High School (CSR-HS), an adapted version of CSR, for adolescents with autism spectrum disorders (ASD)?

Reutebuch, C. K., Vaughn, S. R., El Zein, F., Kim, M. K., & Weinberg, A. (under review). *Examining the effects of a comprehensive reading intervention for adolescents with autism spectrum disorders.*

Participants, Setting, and Materials

PARTICIPANTS

Three high school students with ASD
- Access primarily academic content across the school day
- Read on at least a second-grade instructional level
- Have an IQ in the low-average to above-average range (80 and above)
- Are willing to participate
- Possess skills and abilities to share their ideas, contribute to conversation, and work cooperatively with a student or tutor to complete a reading activity, using taught strategies

Three peer partners
- Identified by staff as a good match for target students with ASD
- Available to participate during target students' CSR-HS sessions
- Have some experience in working with target students

TARGET PARTICIPANT CHARACTERISTICS

	HECTOR	BRIAN	SOFIA
GRADE	9	10	11
AGE	15	16	17
DIAGNOSIS	ASD	ASD	ASD
INSTRUCTIONAL READING LEVEL (GRADE EQUIVALENT)	3	2	5
WJ-III PC PRETEST	2.0	K8	4.8

Note. WJ-III PC = Woodcock-Johnson III Tests of Achievement Passage Comprehension subtest.
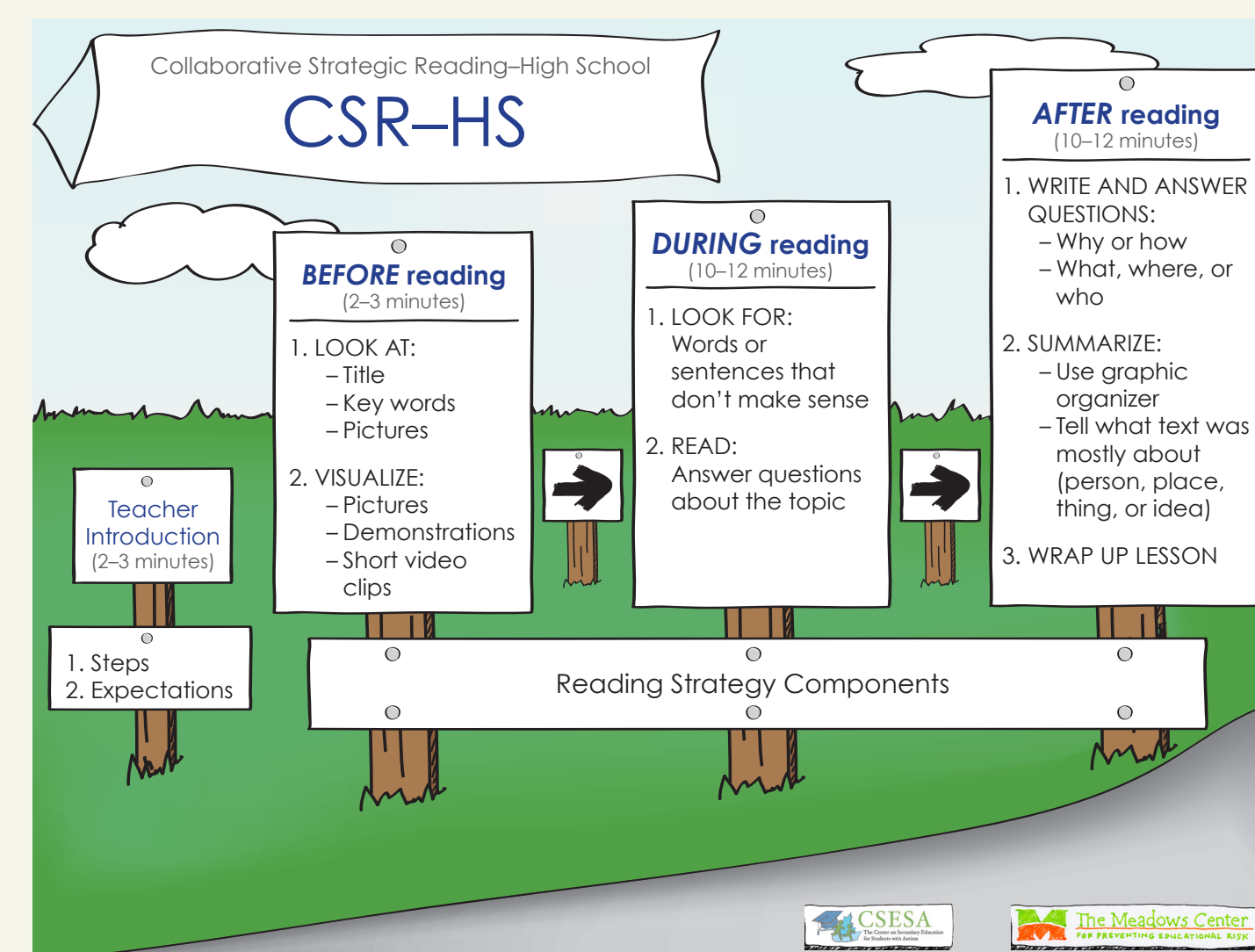
SETTING
- Rural central Texas high school
- Approximately 30 miles southeast of Austin
- 65% of students economically disadvantaged
- Pullout tutorial sessions in the special education setting

MATERIALS
- CSR-HS visual (see below)
- Lesson plan
- Text
- Visual cues for topic
- Learning log
- Self-monitoring checklist
- Question stems

CSR-HS Visual

Intervention Design

DELAYED MULTIPLE-BASELINE DESIGN

- Target participant only
- With peer partner

Baseline Phase (Minimum of three data points)

Intervention Phase (Minimum of three consistent data points)
Phase 1: CSR-HS **Phase 2:** Possible

Maintenance Phase (Minimum of three data points 1–2 weeks after Intervention Phase)

Independent Phase (Optional) (At least two data points after Maintenance Phase)

Baseline Phase
- Teacher led 30-minute business-as-usual sessions.
- Participant read aloud or silently a randomly selected passage on his or her instructional reading level.
- Implementer provided directions to answer reading comprehension questions.
- Participant completed probes without receiving error correction or prompting.

Intervention Phase
- **Overview sessions:** Priming technique in which students access CSR-HS strategy steps prior to beginning lessons
- **CSR-HS sessions:**
  - Students paired with trained, typically developing peer
  - Before-, during-, and after-reading model
  - Strategy instruction
  - Cooperative learning
- **Adaptations for ASD:**
  - Priming (tutorials)
  - Task analysis
  - Self-monitoring (checklist)
  - Least-to-most prompting
  - Visual cues (pictures, video clips)
- **CSR-HS 2:** Further adaptations if needed

DEPENDENT VARIABLES
- Accuracy of responding to reading comprehension probes
- Challenging behavior
  - Hector: Off task
  - Brian: Task refusal
  - Sofia: Skin picking
- Social interactions (imitation and responding)

DATA COLLECTION
- Percent correct from permanent product (reading comprehension probes)
- Event recording for task refusal (percent of opportunities) and social interactions (frequency)
- Partial interval recording for off-task behavior and skin picking
- Treatment fidelity measured for 100% of sessions
- Interobserver agreement measured for at least 40% of sessions
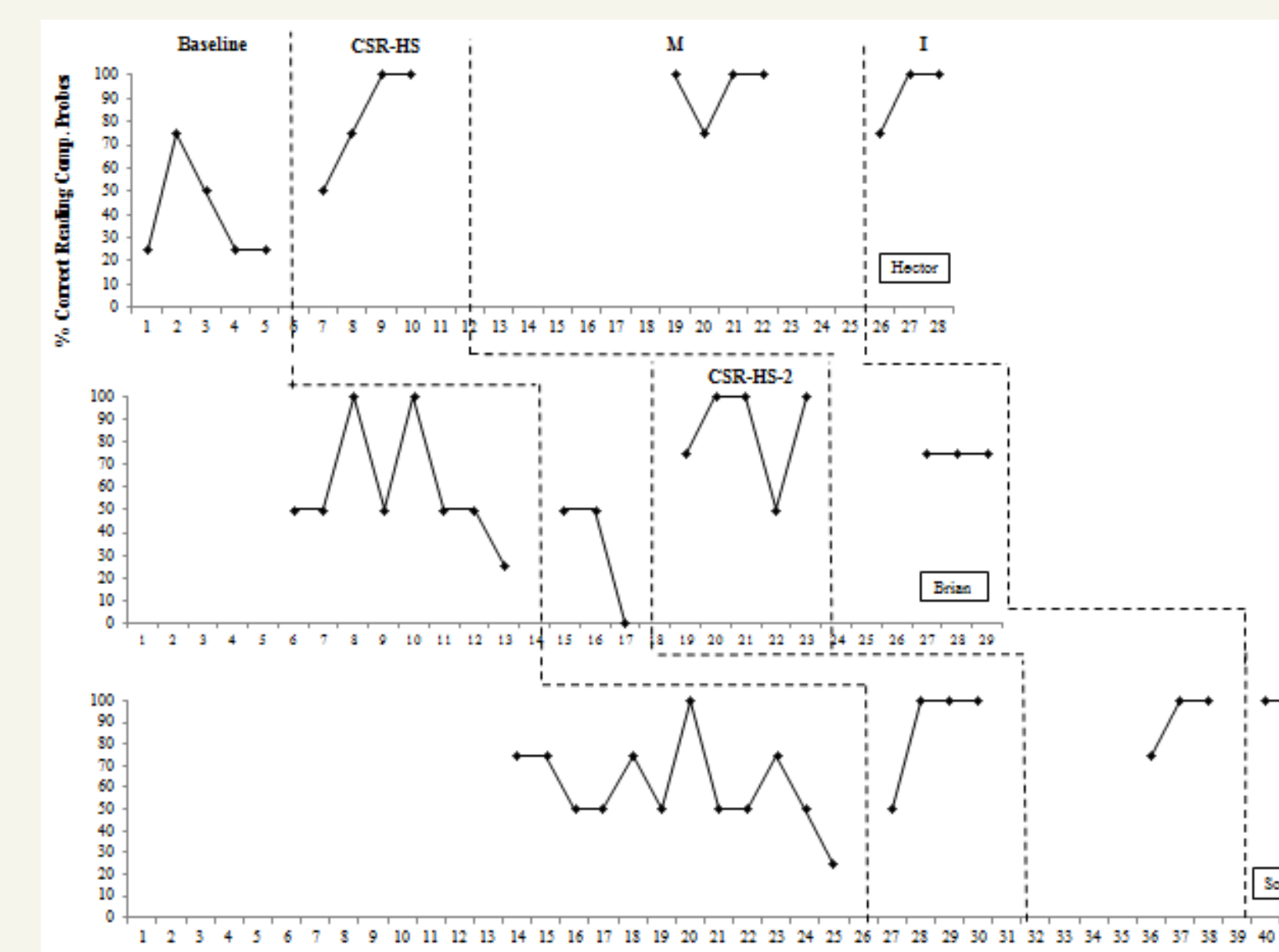
Results

DEPENDENT VARIABLES

	HECTOR AND SOFIA	BRIAN
READING COMPREHENSION	Improved accuracy of responding during CSR-HS implementation and during maintenance and independent phases	Decreased accuracy of responding during CSR-HS; increased accuracy during CSR-HS 2
CHALLENGING BEHAVIOR	Reduced intervals with off-task behavior in all phases	Reduced intervals with off-task behavior from CSR-HS implementation to independent phase
SOCIAL INTERACTIONS	Increased social interactions in all phases	Increased social interactions from CSR-HS implementation to independent phase

ACCURACY OF RESPONDING TO READING COMPREHENSION PROBES

	MEAN SCORES (%)			
	BL	INT	M	I
HECTOR	40	81	94	92
BRIAN	61	Phase 1: 33 Phase 2: 85	75	NA
SOFIA	60	88	92	100

Note. BL = Baseline Phase; INT = Intervention Phase; M = Maintenance Phase; I = Independent Phase.

Results (cont.)

OCCURRENCES OF CHALLENGING BEHAVIOR

	MEAN SCORES (%)			
	BL	INT	M	I
HECTOR	100	77	14	2
BRIAN	33	Phase 1: 9 Phase 2: 0	0	NA
SOFIA	90	36	3	0

Note. BL = Baseline Phase; INT = Intervention Phase; M = Maintenance Phase; I = Independent Phase.

FREQUENCY OF SOCIAL INTERACTIONS

	MEAN SCORES (n)			
	BL	INT	M	I
HECTOR	6	57	95	51
BRIAN	2	Phase 1: 45 Phase 2: 51	16	NA
SOFIA	5	74	73	26

Note. BL = Baseline Phase; INT = Intervention Phase; M = Maintenance Phase; I = Independent Phase.
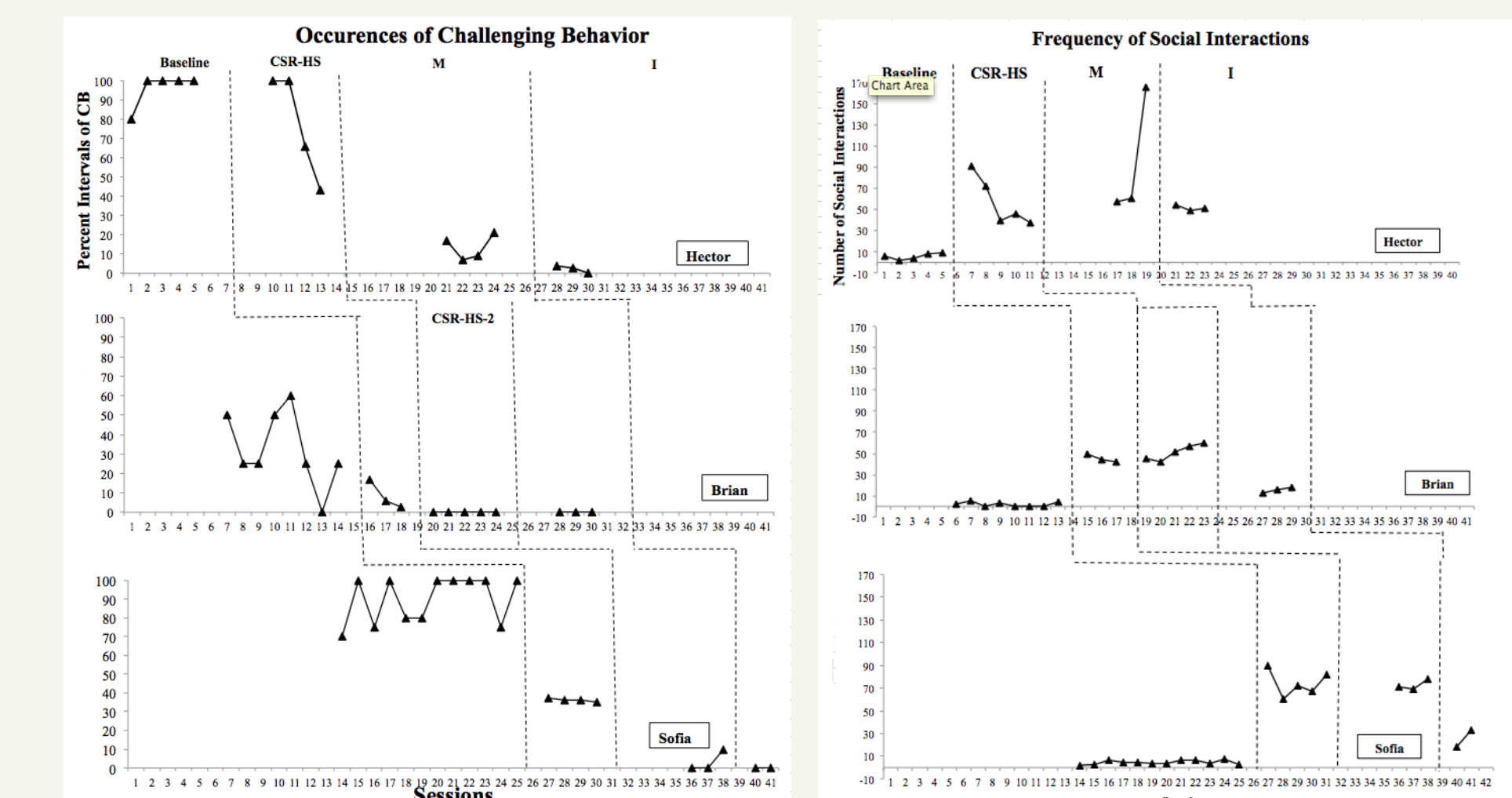
Discussion

IMPLICATIONS
- Findings confirm the need for individualizing instruction for students with ASD.
- Multicomponent interventions (e.g., strategy instruction, cooperative learning, behavioral techniques) may improve the reading comprehension performance of students with ASD.
- Modifying academic tasks is a promising antecedent intervention that may indirectly reduce challenging behaviors and increase social interactions.

LIMITATIONS
- Limited number of participants
- Self-contained setting
- Researcher-implemented intervention
- Lack of generalization data

DIRECTION FOR FUTURE RESEARCH
- Future research is warranted to examine the generality of CSR-HS strategies across settings and content areas.
- Future research is needed to examine the effects of each approach employed through component analysis.
- Further investigations are warranted to establish evidence-based practices particular to enhancing the reading comprehension performance of students with ASD.