The Effects of a Self-Management Intervention on Academic Engagement for High School Students with Autism

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What is CSESA?

- Center on Secondary Education for Students with Autism Spectrum Disorders (ASD) http://csesa.fpg.unc.edu
  - Center funded by the Department of Education to develop and study a comprehensive high school program for students on the autism spectrum

What is PRISM?

- PRISM stands for ***Personal Responsibility, Independence, and Self-Management***- the behavioral outcomes we are all striving for when working with adolescents on the autism spectrum.

- PRISM is a process that supports school staff in selecting goals and interventions to support optimal outcomes for our students.

Orientation | **Form Team & Collect Information** | **Plan Intervention** | **Implement Interventions** | **Monitoring & Updating Plan**

Investigators

Primary Investigators

- Sam Odom & Kara Hume, UNC–Chapel Hill

Co-PIs

- Diane Browder & David Test, UNC–Charlotte
- Erik Carter, Vanderbilt Kennedy Center
- Leann Smith, Waisman Center, Univ. of Wisconsin–Madison
- Sally Rodgers, MIND Institute, UC Davis
- Sharon Vaughn & Colleen Reutebuch, Meadows Center, The University of Texas at Austin

2013–14 UT Team Acknowledgements

- Dr. Sharon Vaughn
- Dr. Colleen Reutebuch
- Dr. Farah El Zein
- Garrett Roberts
- Min Kyung Kim
- Briana Steelman
- Aron Weinberg
- Participating district, staff, students, and parents

Overview

- Previous Research
- Rationale
- Participants
- Research Design
- Data Collection and Analysis
- Dependent Variables
- Intervention
- Results
- Discussion

Some Characteristics of Autism

Students with autism frequently include:

- Poor social skills
  - Interactions and initiations
  - Social reciprocity
- Language delay
  - Verbal and non-verbal
- Attention problems
- Emotion regulation deficits

Self-Management

- Self-management
  - Self-monitoring
  - Self-recording
  - Self-evaluation
  - Self-reinforcement
- Self-management is considered an emerging and effective evidence-based practice with strong effect sizes (deBruin, Deppeler, Moore, & Diamond, 2013; Odom et al., 2003)
- Has been successfully used to improve: (a)social skills, (b) independent work skills, and (c) social interactions in inclusive settings (Harrower & Dunlap, 2001)

Self-Management

- Effective in general education and special education settings (Koegel, Koegel, Harrower, & Carter, 1999)
- Shown to increase ownership of personal management of behavior and behavioral outcomes with minimal adult support (Dunlap, Dunlap, Koegel, & Koegel, 1991; Koegel, Koegel, & Parks, 1991)
- Combining evidence-based practices with self-management has been shown to be effective (Koegel, Koegel, Harrower, & Carter, 1999)
- Students can learn and generalize these strategies with increased self-awareness (Myles & Southwick, 1999)

Academic Engagement

- Time spent engaged is positively related to learning outcomes (Cancelli, Harris, Friedman, & Yoshida, 1993)
- Visual and auditory engagement is necessary to make social and academic gains (Goodman & Williams, 2007)
- Visual and activity schedules have been helpful in increasing student engagement (Dettmer, Simpson, Myles, & Ganz, 2000)

Rationale

- Little research has been conducted with adolescents with ASD (Mesibov & Shea, 2011)
- It remains unclear whether research-based approaches are as effective in the public school setting as they are in a clinical setting (deBruin, Deppeler, Moore, & Diamond, 2013)
- The number of students with disabilities accessing the general ed curriculum continues to rise
- No study has looked at self-management and academic engaged time in high school aged students with autism in a public school setting (deBruin, Deppeler, Moore, & Diamond, 2013; Lee, Simpson, & Shogren, 2007; Southall & Gast; 2011)

Research Question

What is the effect of a multi-component self-management intervention on academic engaged time (AET) for two high school students with ASD?

Selection of Participants

Target students with ASD-

High school students with ASD who:

a) Access primarily academic content across the school day;
b) Participated in a study skill period;
c) Have an IQ in the low average to above average range (80 and above);
d) Were selected by school staff as needing behavioral supports; and
e) Are willing to participate

Participant Characteristics

Participants	Grade	Age	Diagnosis	Behavior IEP Goals?	Academic IEP Goals?
Andrew	12th	18	Autism	Yes	No
Derek	11th	17	Autism	Yes	No

Setting

- Rural Central Texas High School with over 800 students
- Approximately 30 miles southeast of Austin
- 65% of the students are economically disadvantaged
- Pull-out study skills period in the special education setting

Prior to Intervention

Subdomain: Problem Solving & Goal Setting Skill Evaluation Priority Ranking		
□ □ □ □ □ 0 1 2 N/O N/A 0=not like student 2=much like student	PS1. Identifies appropriate person to ask for assistance*+ Note: Includes peers, adults, staff	□ □ □ 0 1 2 0=no concern 2=major concern
□ □ □ □ □ 0 1 2 N/O N/A	PS2. Seeks help appropriately from identified person Note: Includes asking for materials/assignments, directions	□ □ □ 0 1 2
□ □ □ □ □ 0 1 2 N/O N/A	PS3. Identifies/defines a problem in structured school/community setting*+ Note: May include challenges that arise in classroom/job site related to tasks, materials, schedule, relationships, etc.	□ □ □ 0 1 2
□ □ □ □ □ 0 1 2 N/O N/A	PS4. Identifies/defines a problem in an unstructured school/community setting*+ Note: May include challenges that arise in hallways, lunch room, social arenas related to schedule, relationships, group activities	□ □ □ 0 1 2
□ □ □ □ □ 0 1 2 N/O N/A	PS5. Generates possible solutions to problem*+	□ □ □ 0 1 2
□ □ □ □ □ 0 1 2 N/O N/A	PS6. Selects solution after considering possible consequences *+	□ □ □ 0 1 2
□ □ □ □ □ 0 1 2 N/O N/A	PS7. Carries out solutions*+	□ □ □ 0 1 2
□ □ □ □ □ 0 1 2 N/O N/A	PS8. Identifies goals and related steps required to meet goals* Note: This can be part of coursework/employment, part of transition planning	□ □ □ 0 1 2
□ □ □ □ □ 0 1 2 N/O N/A	PS9. Makes choices that match identified goals* Note: This may include courses to take, preferred leisure activities	□ □ □ 0 1 2
□ □ □ □ □ 0 1 2 N/O N/A	PS10. Makes choices that support healthy lifestyle*+ Note: Related to diet, exercise, substance abuse, personal safety	□ □ □ 0 1 2
□ □ □ □ □ 0 1 2 N/O N/A	PS11. Communicates goals and choices to others at appropriate time Note: Includes at IEP/ITP meetings	□ □ □ 0 1 2
□ □ □ □ □ 0 1 2 N/O N/A	PS12. Other:	□ □ □ 0 1 2

PRISM BEHAVIORS:

Personal Responsibility and Independence: *Organization, Planning, Problem-solving, Personal presentation*

Community Engagement: *Conversation, Other communication, Recognizing emotions, Cooperation, Understanding School/community culture,*

Self-Management: *Self-regulation of emotion & behavior, Flexibility, Self-monitoring*

Key for Step 1: Skill Evaluation (left column)

0= This is NOT like my student.
- My student is not/rarely able to demonstrate this skill with the supports I provide to the group

1=This is sort of like my student.
- My student is able to demonstrate this skill regularly with additional supports (e.g. individual attention, visual information, additional reminders, adjusted assignment) AND/OR
- My student is able to demonstrate this skill sporadically with the supports I provide to the group.

2=This is very much like my student .
- My student is able to demonstrate this skill regularly with the supports I provide to the group

N/O= I have not observed this skill area for my student

N/A= This skill area is not applicable to my student

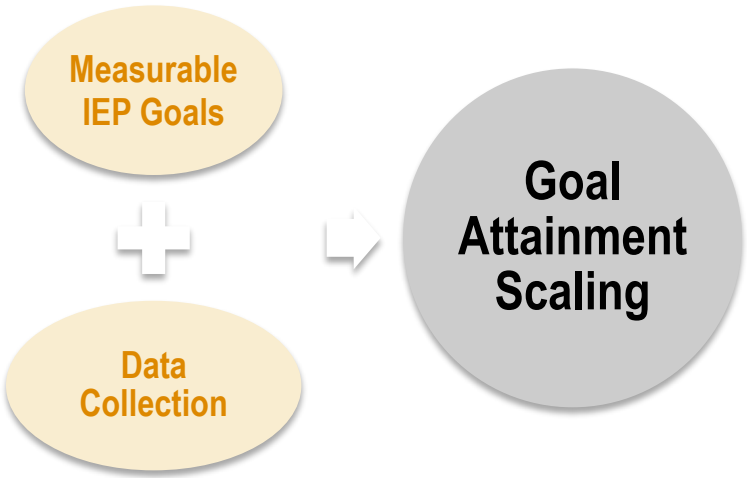
Key for Step 2: Priority Ranking (middle column)

0= Not a concern
- Though the skill is not demonstrated consistently and or independently, it is not a concern or priority in this environment

1= Minor concern
- Demonstrating this skill consistently and/or independently would be helpful in this environment

2= Major concern
- Demonstrating this skill consistently and/or more independently is a requirement in this environment.

Prior to Intervention



0	PRESENT LEVEL OF PERFORMANCE (BASELINE)	Erik asks teachers 41 off topic and 0 on topic questions during a class period.
1	INITIAL OBJECTIVE	Given visual prompts, Erik will ask teachers no more than 10 questions (on or off topic) during a class period across one week of data.
2	SECONDARY OBJECTIVE	Given visual prompts, Erik will ask teachers no more than 5 questions (on or off topic) during a class period across one week of data.
3	ANNUAL GOAL	Given visual prompts, Erik will ask teachers at least 2 on topic and less than 2 off topic questions during the class period across one week of data.
4	EXCEEDS ANNUAL GOAL	Given visual prompts, Erik will ask teachers at least 2 on topic questions and no off topic questions during the class period across one week of data.

Student Materials

To Do List

Name: _____ Date:_____

	X When Completed	Items to Complete
1.	☐	
2.	☐	
3.	☐	
4.	☐	
5.	☐	
6.	☐	

Student Materials

Self- Management Sheet

Name: _____

Goals	Mon. Date: _____	Tues. Date: _____	Wed. Date: _____	Thurs. Date: _____	Fri. Date: _____
1. I came in and sat down					
2. I quickly began working on my checklist					
3. I tried my best					
Adult Agrees? Yes=2 No=0					
Total Points					
Student Prize (6 pts)? Circle one:	Yes No	Yes No	Yes No	Yes No	Yes No

Research Design

Target Participant

Baseline Phase

(minimum 5 data points) + 2 days of training

Self- Management Intervention Phase (SM-1)

(minimum 5 consistent data points)

Withdrawal Phase

(minimum 5 data points)

Self- Management Intervention Phase (SM-2)(minimum 5 consistent data points)

Dependent Variables

Academic Engaged Time (AET)

- **Includes:** (a) working on an assigned task in seat (i.e., looking at paper, text, or writing) (b) students may look away from text for up to one second and still be considered AET, or (c) talking to adult about task
- **Does not include:** (a) asking an off-topic question or engaging in an off-topic conversation, (b) organizing materials, (c) getting out of seat, or (d) flipping through pages not part of assigned task

Social Validity Measures

- **Teacher:** (a) training, coaching, and support, (b) feasibility and acceptability, (c) usefulness and effectiveness
- **Student:** (a) working on independence

Data Collection

- Percent of time academically engaged
  - 10-s whole interval
- Interobserver agreement was measured for 24% of the sessions
  - Interval agreement calculation @ 93%
- Teacher and student surveys

Baseline/ Withdrawal

- 30-minute, independent work, business as usual sessions
- Participant completed unfinished assignments from other classes
- Redirects were given to students
- Students were able to ask for help if needed

Training

Day 1

- Led by a trained peer with autism
- Video modeling used
- Opportunities to practice, ask questions, give feedback

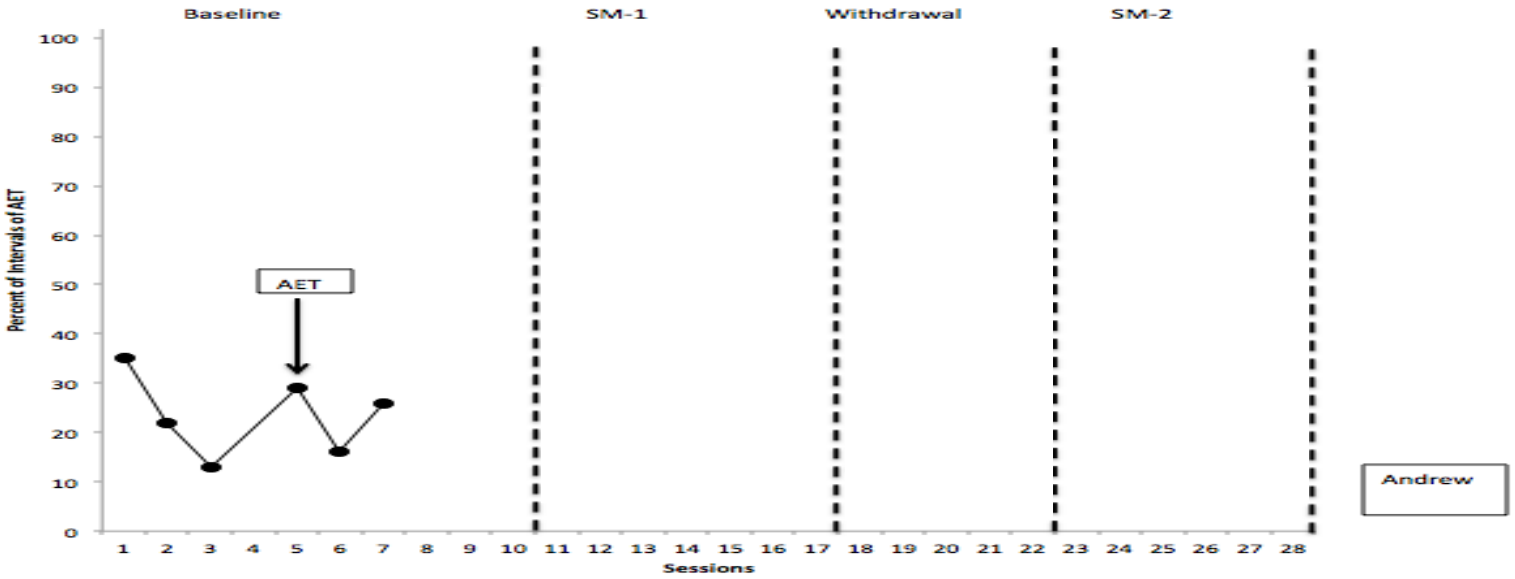
Day 2

- Rules retaught by adults and students practiced using the self-management device

Intervention (SM 1 & 2)

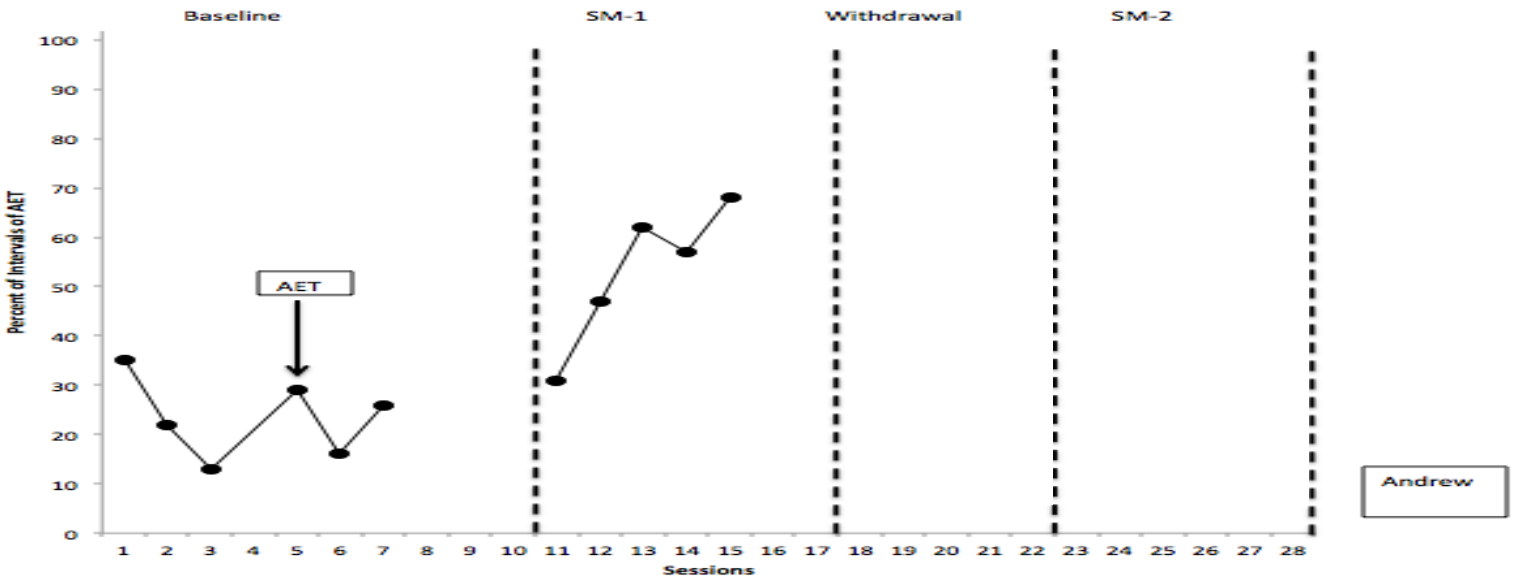
- **Same as baseline except, students:**
  1. Complete a "to-do" checklist of work to be completed
  2. Begin working on the items on the "to-do" checklist
  3. Fill out a self-management form at the conclusion of work being completed
  4. Check the accuracy of the work completed and the self-management sheet with a teacher or paraprofessional
  5. Earn desired activity time upon accurate completion of work on "To Do List" (about 5-10 min)
     - E.g., movie, phone, etc.

Results



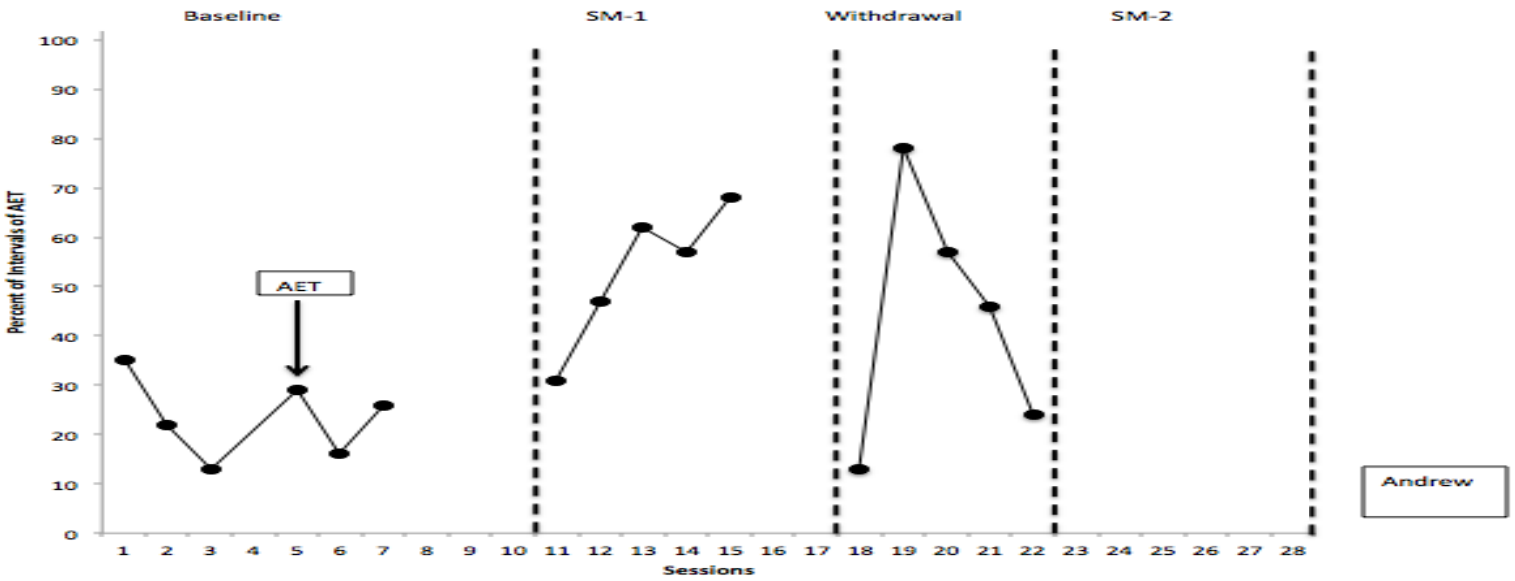
Percentage of time academically engaged				
Participants	Mean Scores (Standard Deviations)			
	Baseline	SM-1	Withdrawal	SM-2
Andrew	24 (8)			

Results



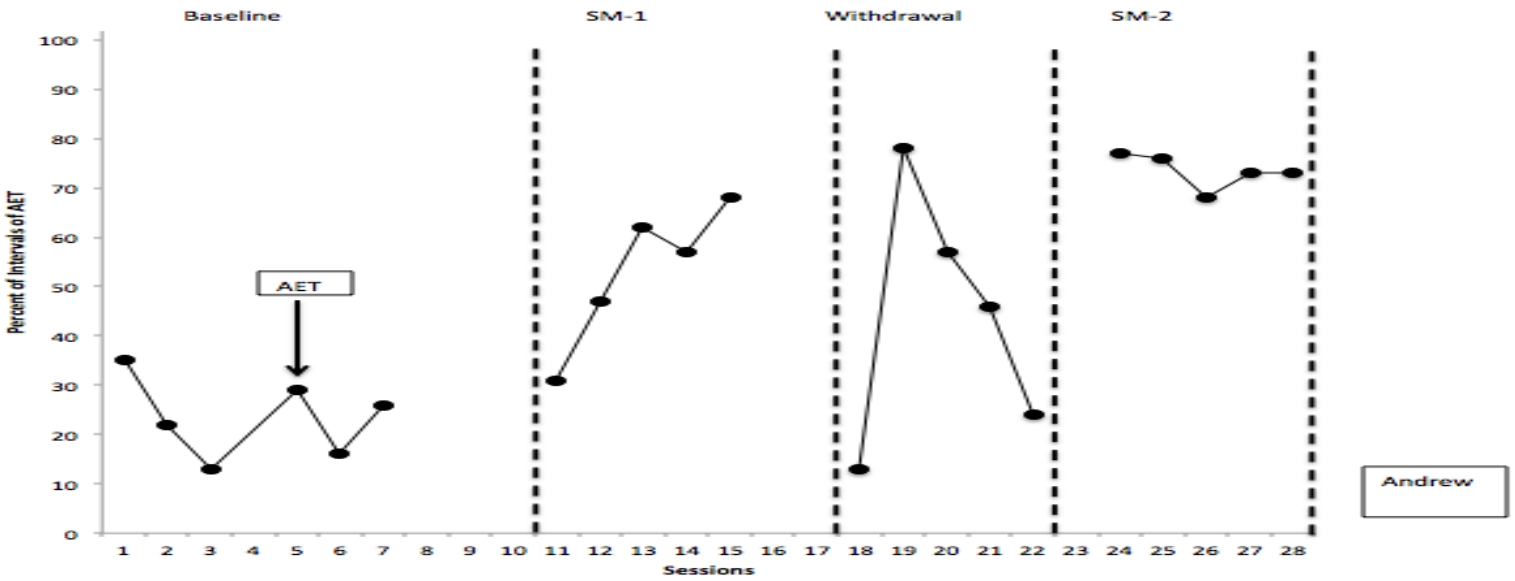
Percentage of time academically engaged				
Participants	Mean Scores (Standard Deviations)			
	Baseline	SM-1	Withdrawal	SM-2
Andrew	24 (8)	53 (15)		

Results



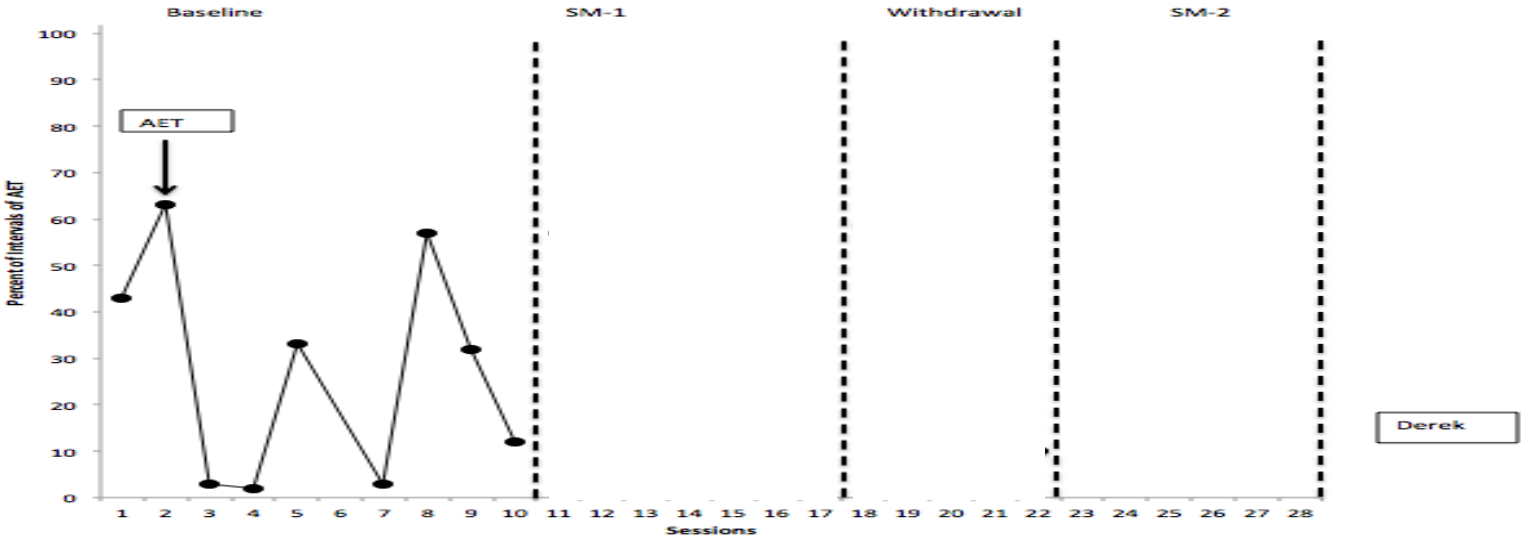
Percentage of time academically engaged				
Participants	Mean Scores (Standard Deviations)			
	Baseline	SM-1	Withdrawal	SM-2
Andrew	24 (8)	53 (15)	44 (26)	

Results



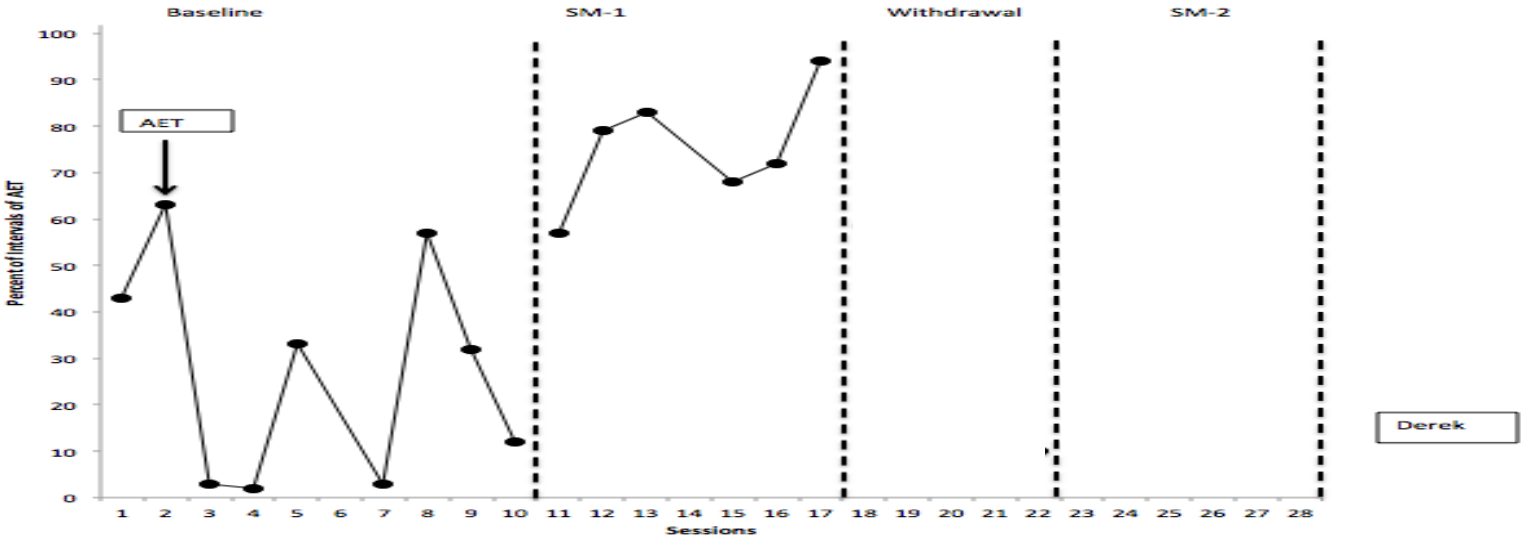
Percentage of time academically engaged				
Participants	Mean Scores (Standard Deviations)			
	Baseline	SM-1	Withdrawal	SM-2
Andrew	24 (8)	53 (15)	44 (26)	73 (4)

Results



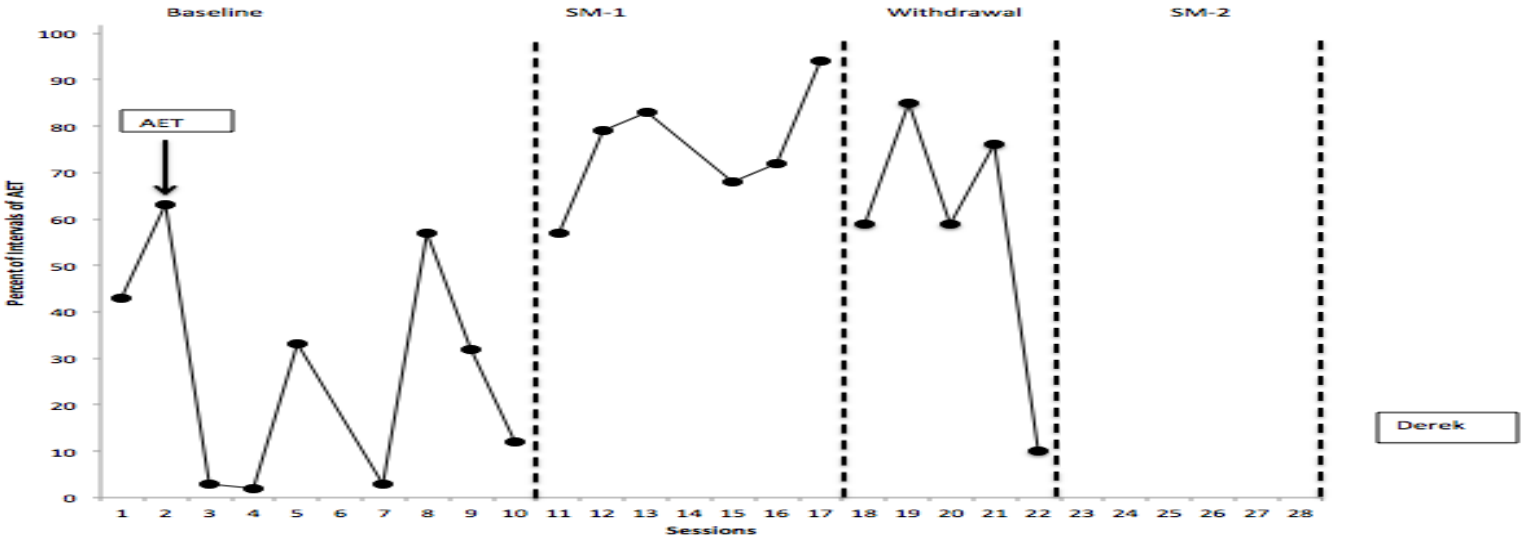
Percentage of time academically engaged				
Participants	Mean Scores (Standard Deviations)			
	Baseline	SM-1	Withdrawal	SM-2
Derek	28 (24)			

Results



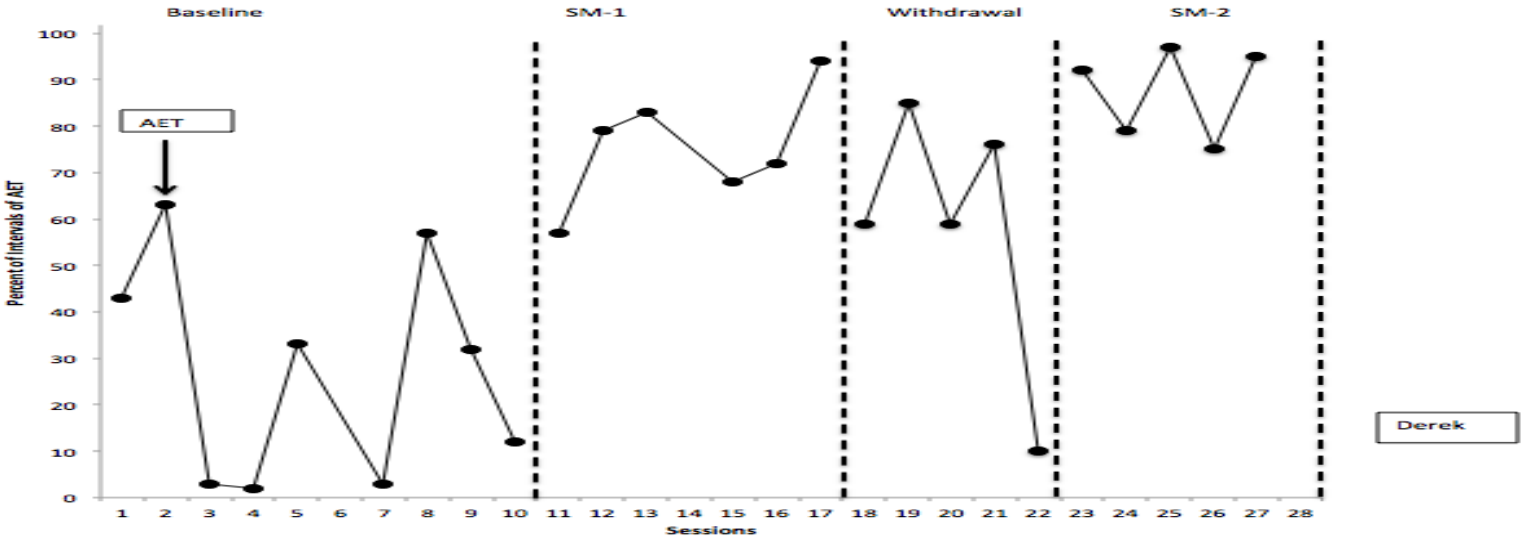
Percentage of time academically engaged				
Participants	Mean Scores (Standard Deviations)			
	Baseline	SM-1	Withdrawal	SM-2
Derek	28 (24)	75 (13)		

Results



Percentage of time academically engaged				
Participants	Mean Scores (Standard Deviations)			
	Baseline	SM-1	Withdrawal	SM-2
Derek	28 (24)	75 (13)	58 (29)	

Results



Percentage of time academically engaged				
Participants	Mean Scores (Standard Deviations)			
	Baseline	SM-1	Withdrawal	SM-2
Derek	28 (24)	75 (13)	58 (29)	88 (10)

Results

Both Andrew and Derek:

- Increase in level
- Positive change in slope
- Decrease in variability
- Immediacy of effect present

Results

Social Validity

- Teachers
  - Results suggest the intervention was helpful and useful
- When students were asked various questions about working on independence:
  - All responses were positive or “not sure”
  - 9/ 10 responses were “not sure”
  - One student said he liked working on the skill

Implications

- Findings suggest that self-management interventions can be used to improve academic engagement for high school students with autism

- The use of multicomponent interventions (e.g., self-management, visual schedules, video modeling) may improve academic engagement for high school students with autism

- Teacher reports suggest that using this multi-component intervention is feasible and beneficial

Limitations

- Limited number of participants
- Special education setting
- Lack of generalization data

Direction for Future Research

- Future research is warranted to examine the generality of self-management strategies for high school students with autism strategies across settings and content areas

- Future research efforts can examine the effects of self-management for high school students with autism on academic outcomes

- Future research can investigate the effects of each approach employed through component analysis

Select References

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