

Effects of Explicitly Teaching “Thinking Words” to Adolescents with High Functioning Autism

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Introduction

- Adolescents with high functioning autism (HFA) may keep pace with peers academically, but often struggle socially
- Previous research has shown improving cognitive/emotive vocabulary knowledge (“Thinking Words”) improves:
 - Reading comprehension & textual inferencing
 - Story grammar comprehension & retelling
 - Discourse-level interactions
- However, to date, no studies have investigated effects of teaching “Thinking Words” on day-to-day social inferencing skill

Research Question

What are the effects of explicitly teaching mental state & emotive state words (i.e., “thinking words”) to adolescents with HFA on their ability to correctly draw inferences about commonly encountered social situations?

Method

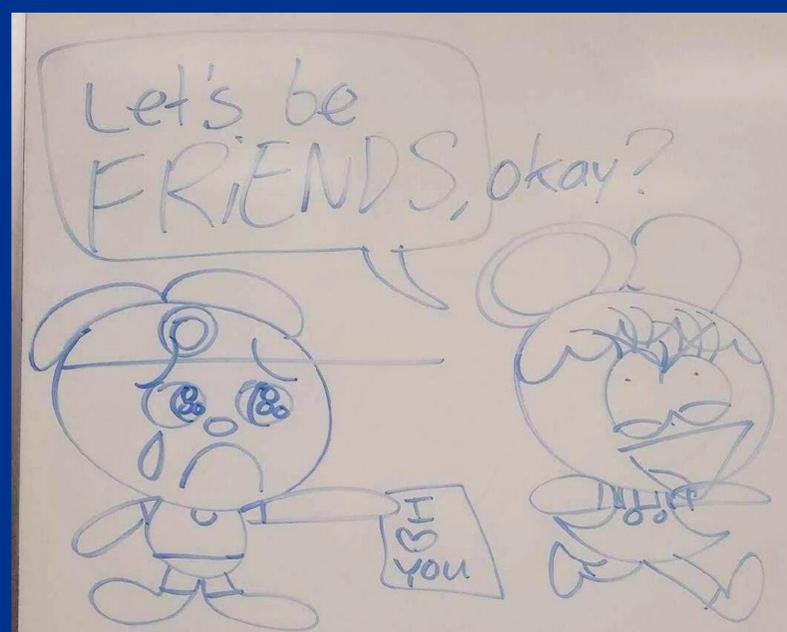
Participants

- 13 adolescents with HFA (ages 15-19 years; 1 girl, 12 boys)
 - Mean EVT-2 performance = 91.34 (range 66-120)
 - Attending specially designed program on a public high school campus

Materials & Procedures

- Specially designed program for students with HFA on a public high school campus
- 36 vocabulary words chosen from *Academic Word List* (Coxhead, 2000) then selected for imageability & spoken word frequency (Bass & Mason, under review)
 - Six 6-word (2 nouns, 2 verbs, 2 modifiers) units taught over 4 lecture-style 50-minute sessions per unit
 - Definitions & visual images of targeted words presented on Google Slides during sessions
 - Participants asked to role-play or relate personal experiences following ‘conversation starters’ embedded into each session
 - E.g., **factor**: the important things you must consider when making a choice.
 - You want a new cell phone, but you’re not sure which one. What are some things you need to think about? You want to get a present for your mom’s birthday. What are some factors you need to consider?
- 30-item researcher-developed probe modeled after Inference subtest of CASL-2 to monitor changes in inferencing skill
 - 10-item probes administered prior to Unit 1 (Time 1), between Units 3 & 4 (Time 2), & after Unit 6 (Time 3)
 - Participants’ responses scored as (0) incorrect; (1) partially correct; or (2) fully correct

Teaching “Thinking Words” has positive effects on the day-to-day inferencing ability of adolescents with HFA



“Reject” during Pictionary review 2/21/2019



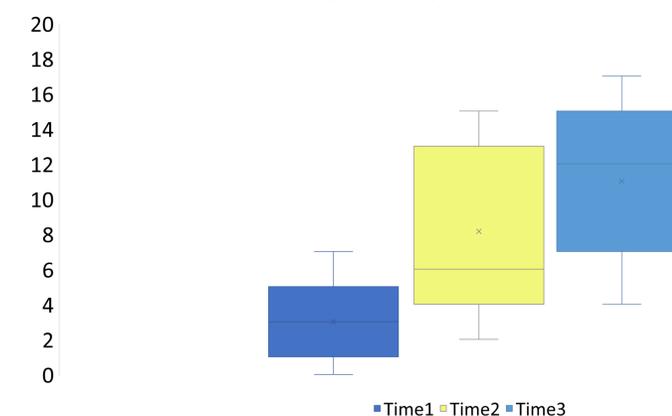
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Results

Words Taught

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Nouns	Fact	Perception	Evidence	Attitude	Context	Consequence
	Opinion	Response	Situation	Motivation	Issue	Factor
Verbs	Agree	Ignore	Exaggerate	Inhibit	Analyze	Manipulate
	Dispute	Visualize	Imply	Participate	Reject	Respond
Modifiers	Flexible	Covert	Predictable	Illogical	Irrelevant	Negative
	Rigid	Obvious	Unstable	Rational	Relevant	Positive

Mean Performance on Researcher-Made Probe



Friedman test for one-way repeated measures:

$$\chi^2 = 24.15, p < .01$$

Wilcoxon signed ranks test with Bonferroni correction: Effect size: Kendall's $W = .88$, large effect

$$\text{Time 2} > \text{Time 1} (z = -3.17, W = 0, p < .01)$$

$$\text{Time 3} > \text{Time 2} (z = -2.93, W = 0, p < .01)$$

Discussion

- Increasing depth of knowledge of Thinking Words in an interactive format significantly improved these adolescents’ ability to correctly make inferences about day-to-day social situations
 - Results suggest face-to-face interactive sessions benefit struggling readers
 - Previous research primarily focused on increasing ability to make inferences in text
- Students anecdotally reported enjoying participating in Thinking Words sessions
 - “I like to learn vocabulary words with Ms. Dr. Lori like covert and flexible. And what’s more flexible and smart than a brain?” (10/12/2018)
 - “I learned new words with Dr. Lori this year. Like flexible. So I can be a more flexible thinker.” (5/30/2019)

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