Effects of Cognitive Remediation on Cognition in Depression

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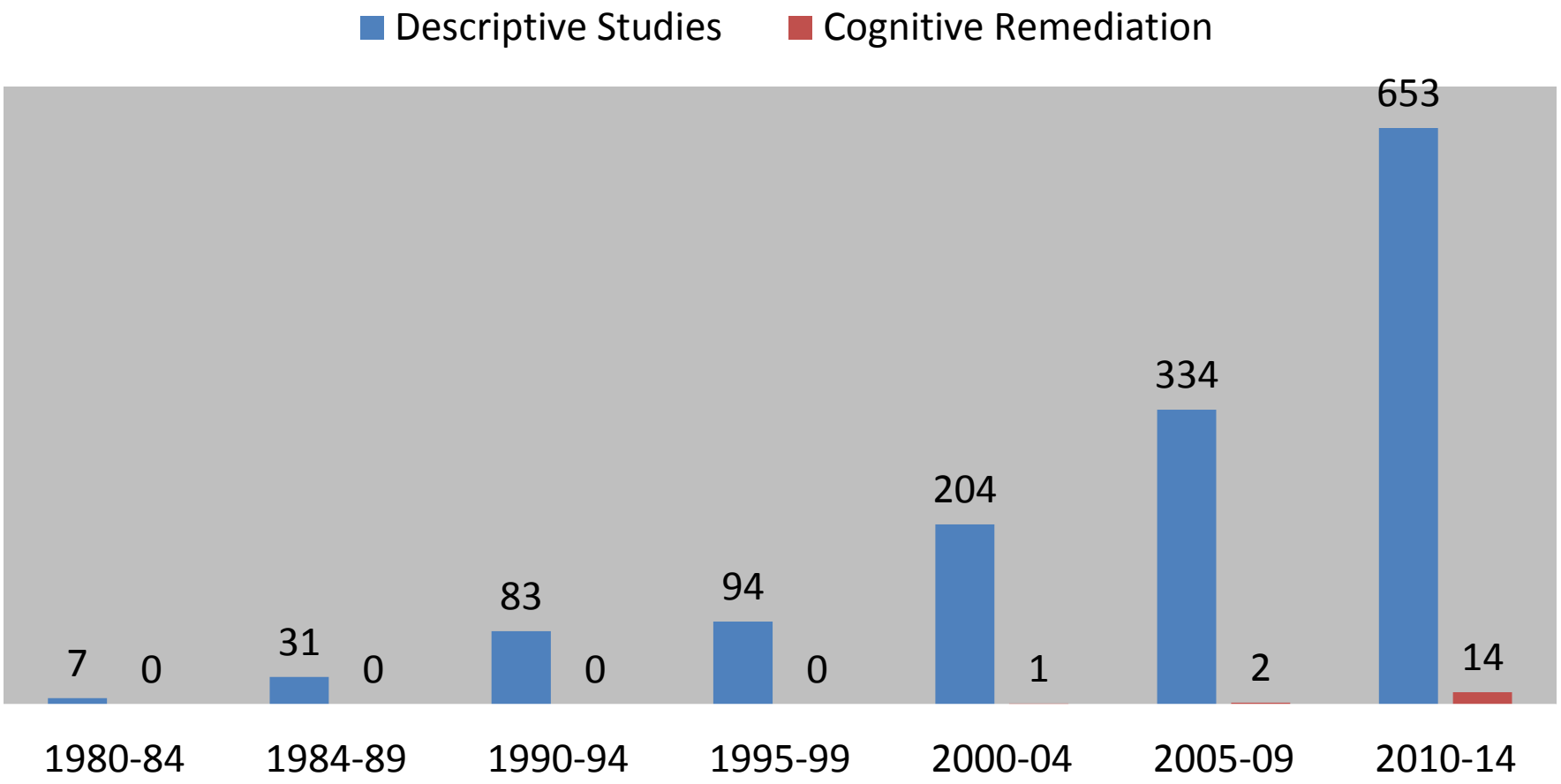
Disclosure: Dr. Christopher Bowie

Financial Interest or Affiliation	Commercial Enterprise(s)
Advisory board or similar committee	Abbott Labs, Abbvie, Lundbeck, Otsuka, Takeda
Clinical trials or studies	Pfizer, Scientific Brain Training Pro
Research grants	CIHR, Brain Canada, NIMH, NARSAD, Pfizer

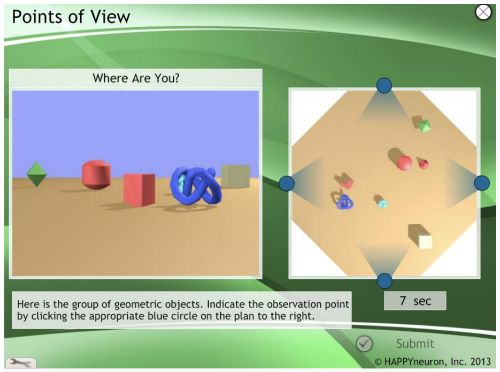
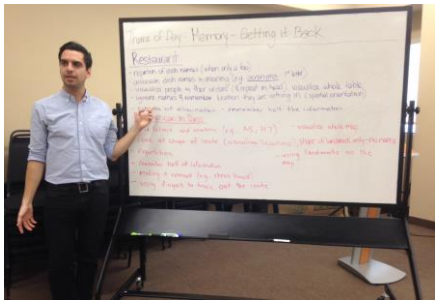
Description vs. Behavioural Treatment of Cognitive Impairment in Depression

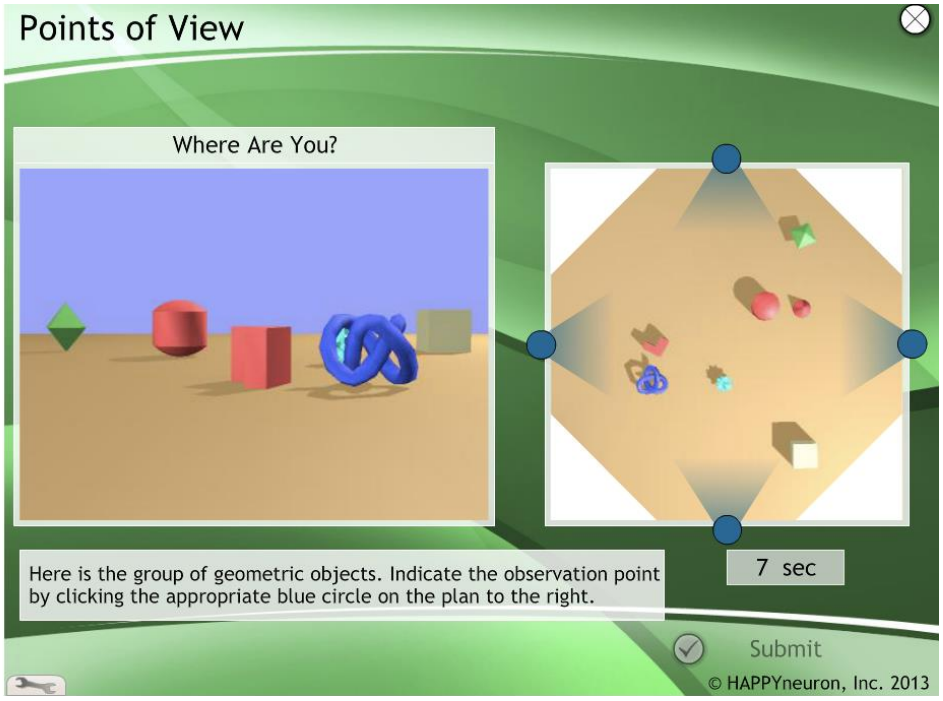


*memory OR attention OR executive function OR neurocognition

What Does Cognitive Remediation Look Like?

Three Pillars

Pillar	*Techniques*	*Mechanisms*	*Example*
Cognitive Activation	• Drill and Practice • Repetitive Exercise • Often Computerized	• Neuroplasticity • Retraining • Stimulation	
Strategic Monitoring	• Identify strategy • Develop new • Prune ineffective	• Metacognitive monitoring • Flexible problem solving	
Generalization	• Discussions • Role-plays • Simulations of Real World Tasks	• Rehearsal • Practice • Procedural Memory	


Points of View
Where Are You?
7 sec
Here is the group of geometric objects. Indicate the observation point by clicking the appropriate blue circle on the plan to the right.
Submit
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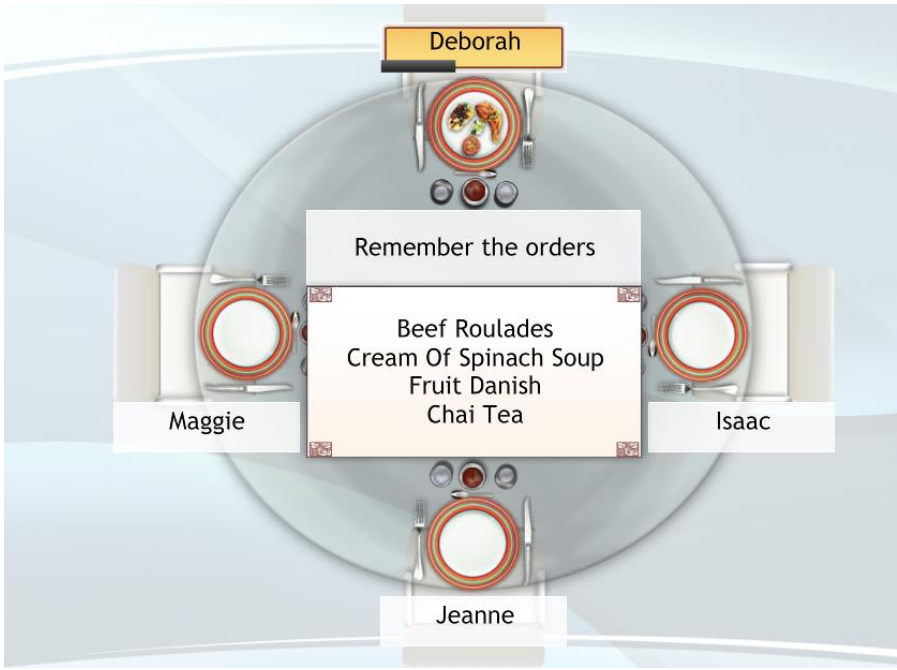
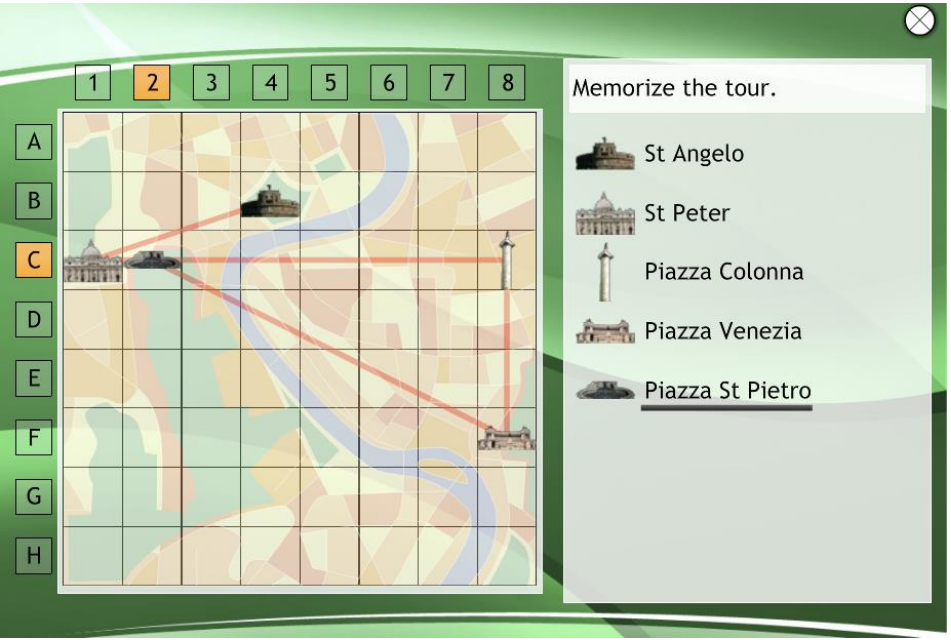

Deborah
Remember the orders
Beef Roulades
Cream Of Spinach Soup
Fruit Danish
Chai Tea
Maggie
Isaac
Jeanne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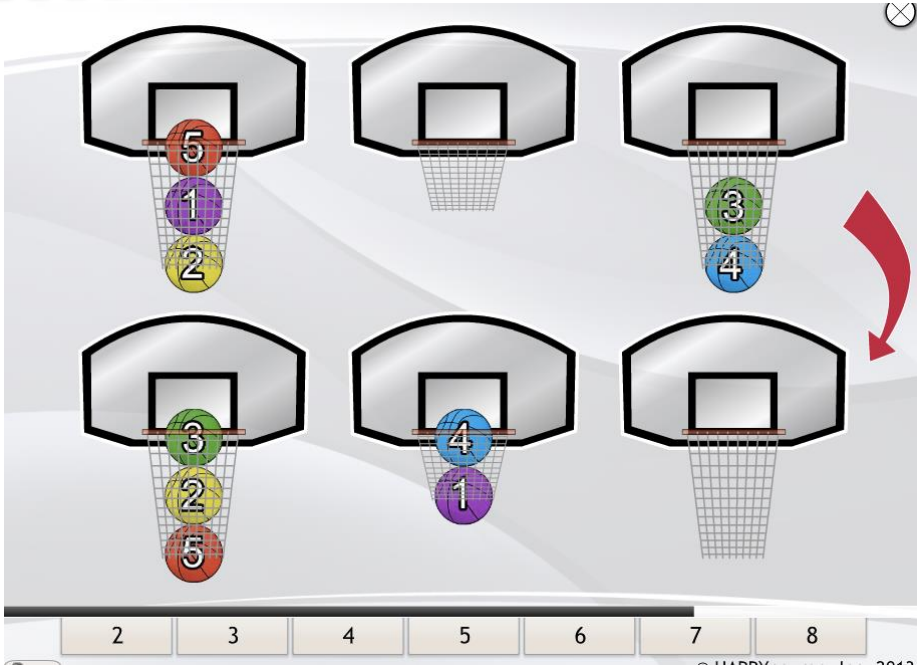
Memorize the tour.
St Angelo
St Peter
Piazza Colonna
Piazza Venezia
Piazza St Pietro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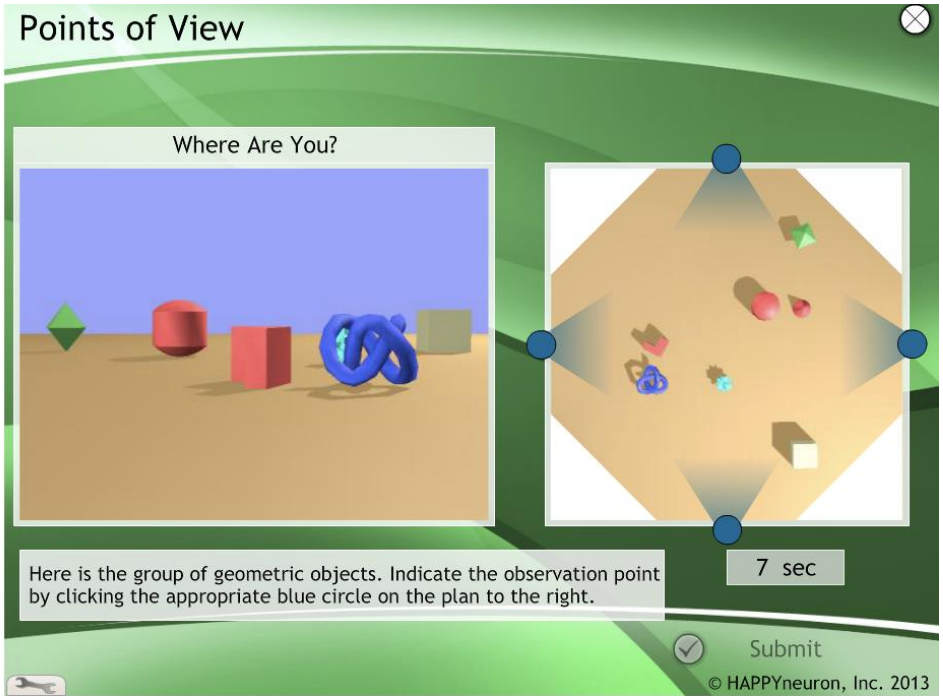
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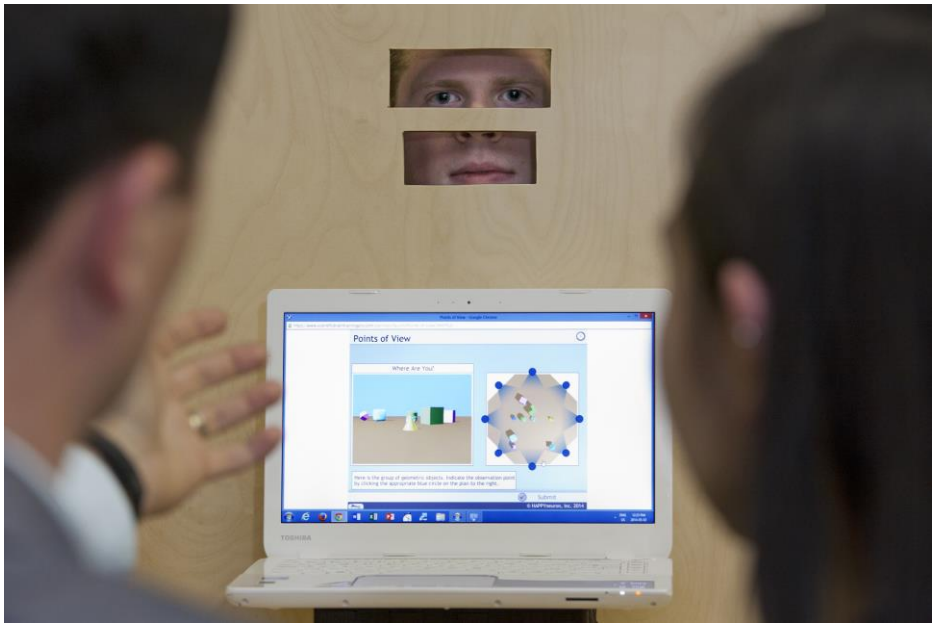
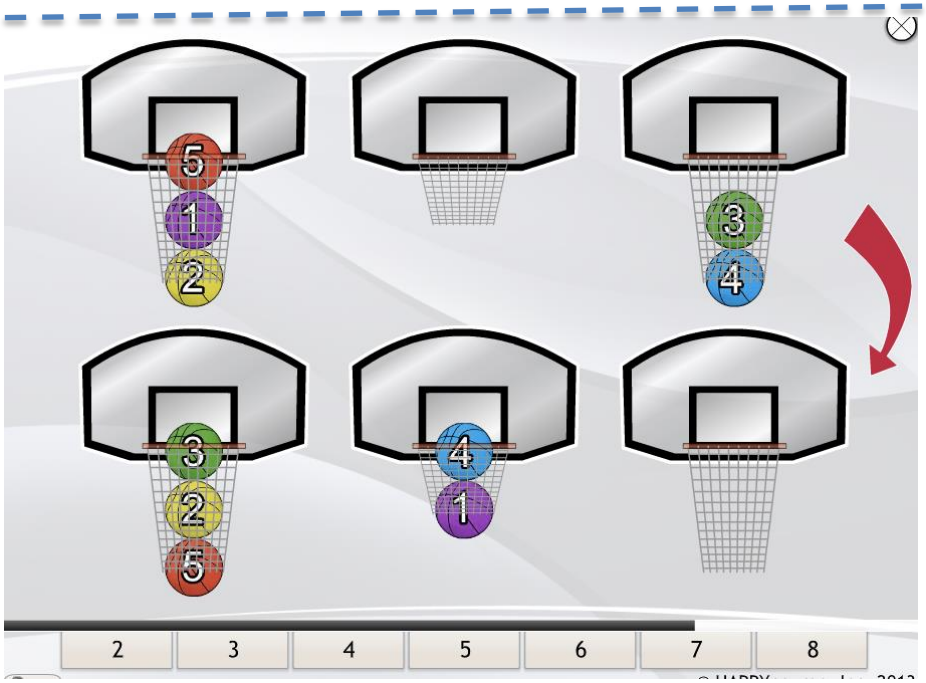

Points of View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Early Evidence for CR Efficacy and Effectiveness in Depression

Lead Author	Sample Size (Tx group)	RCT?	Techniques			Treatment Duration	Effects on Cognition	Effects on Behaviour
			Activ.	SM	Gen.			
Alvarez	11	Yes	✓			12 weeks	Very Large	Small - Modest
Elgamal	12	No	✓	✓		10 weeks	Modest	*Not Reported*
Naismith	8	No	✓		✓	10 weeks	Very Large	**None**
Meusel	35	No	✓			10 weeks	Modest	**None**; but ↑ brain function
Morimoto	11	No	✓			4 weeks	Large	*Not Reported*

ORIGINAL ARTICLE

Cognitive Remediation for Treatment-Resistant Depression

Effects on Cognition and Functioning and the Role of Online Homework

Christopher R. Bowie, PhD, Maya Gupta, MSc, Katherine Holshausen, MSc, Ruzica Jokic, MD, Michael Best, BSc, and Roumen Milev, MD

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Cognitive Remediation Techniques

Part 1: Group Sessions

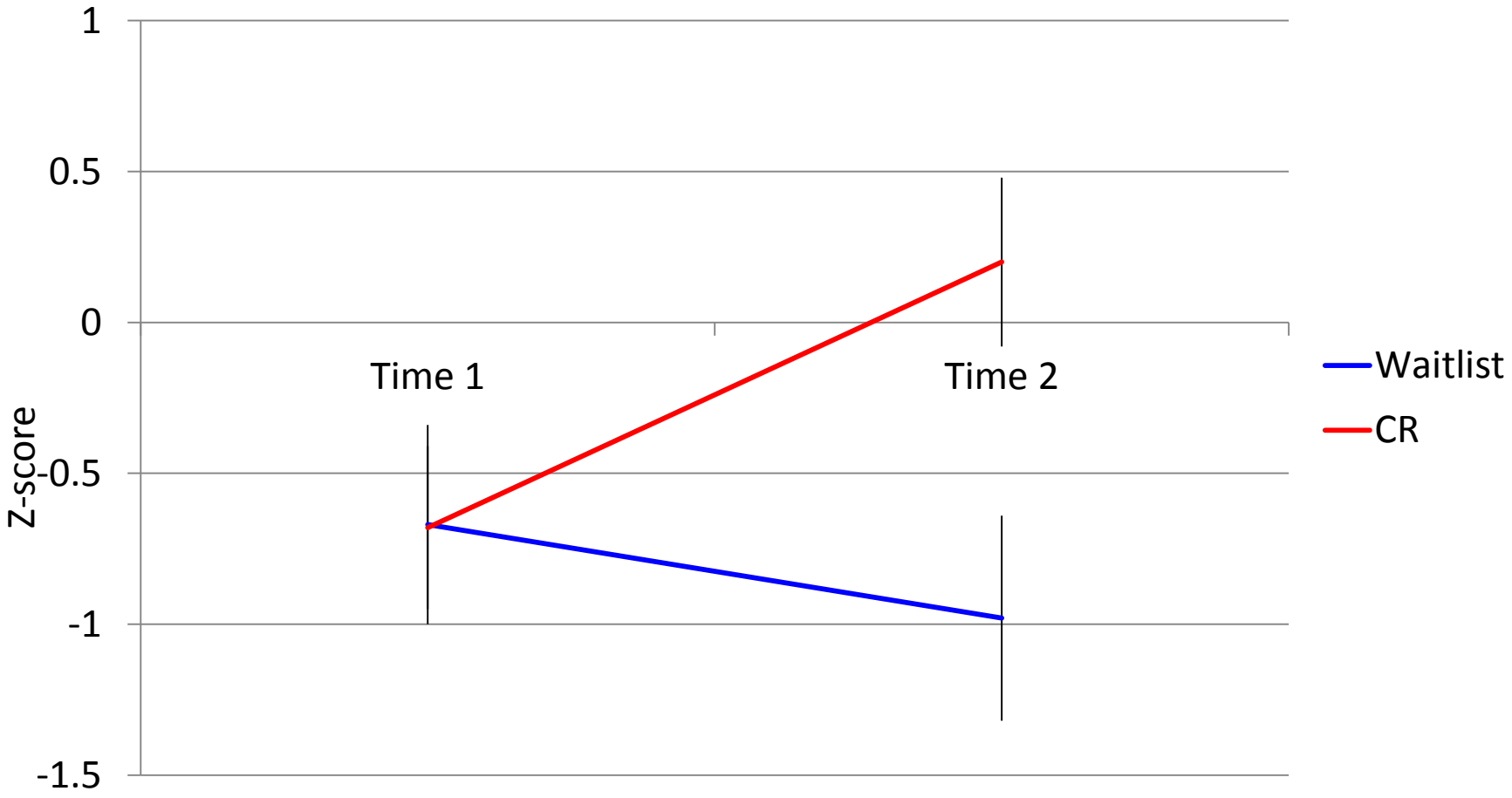
- 90 minutes per week for 10 weeks
- Group format; 3:1 Patient:Therapist
- Therapist guided; all 3 Pillars of CR
  - Computer-based drill and practice
  - Strategic monitoring
  - Generalization to real-world goals (discussion)

Cognitive Remediation Techniques:
Part 2: Homework

- 40 min/day (e.g., 2 sessions of 20 min/day)
  - Same exercises completed in session

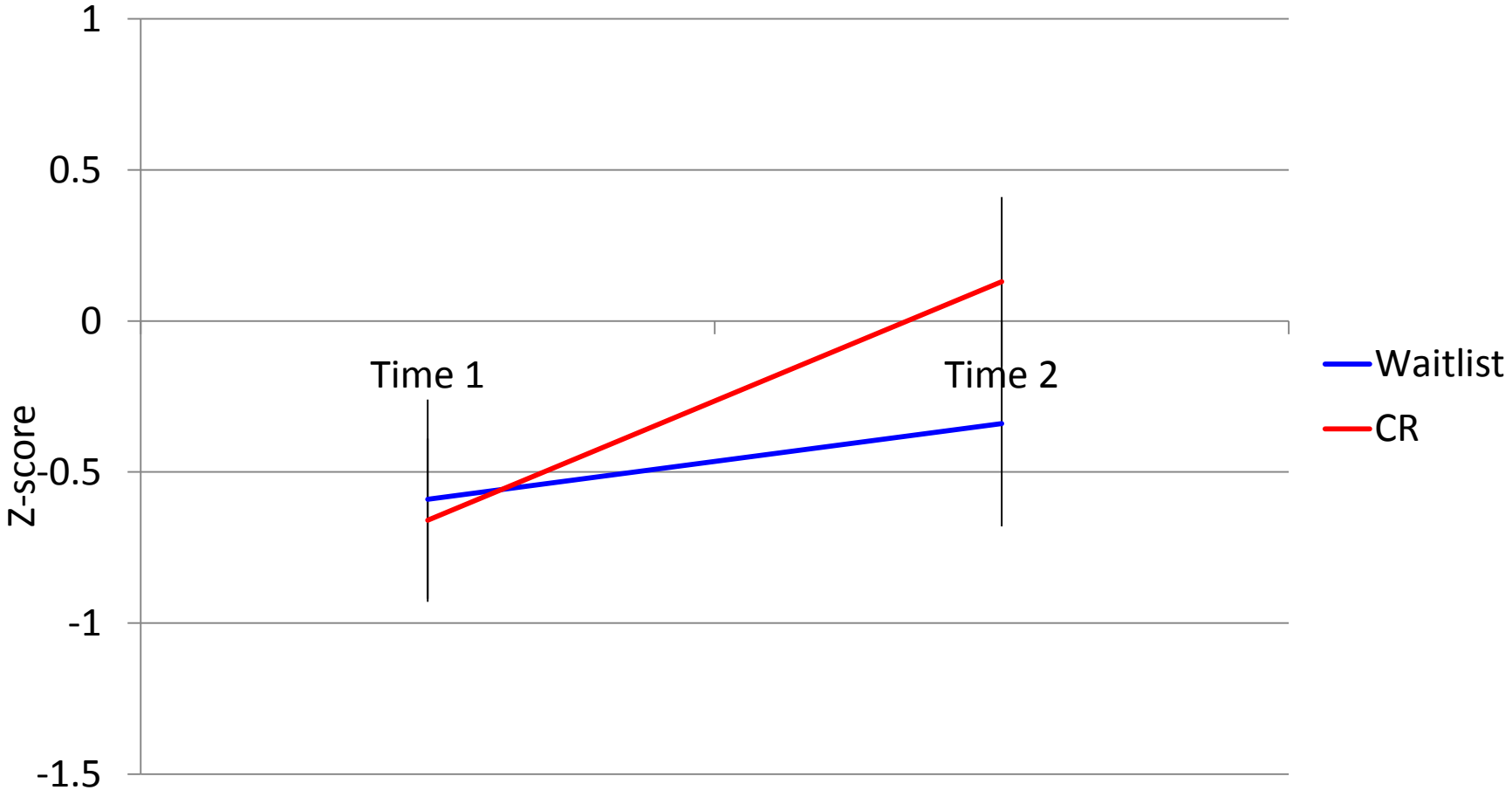
- Take notes on strategies and generalization

Learning and Memory



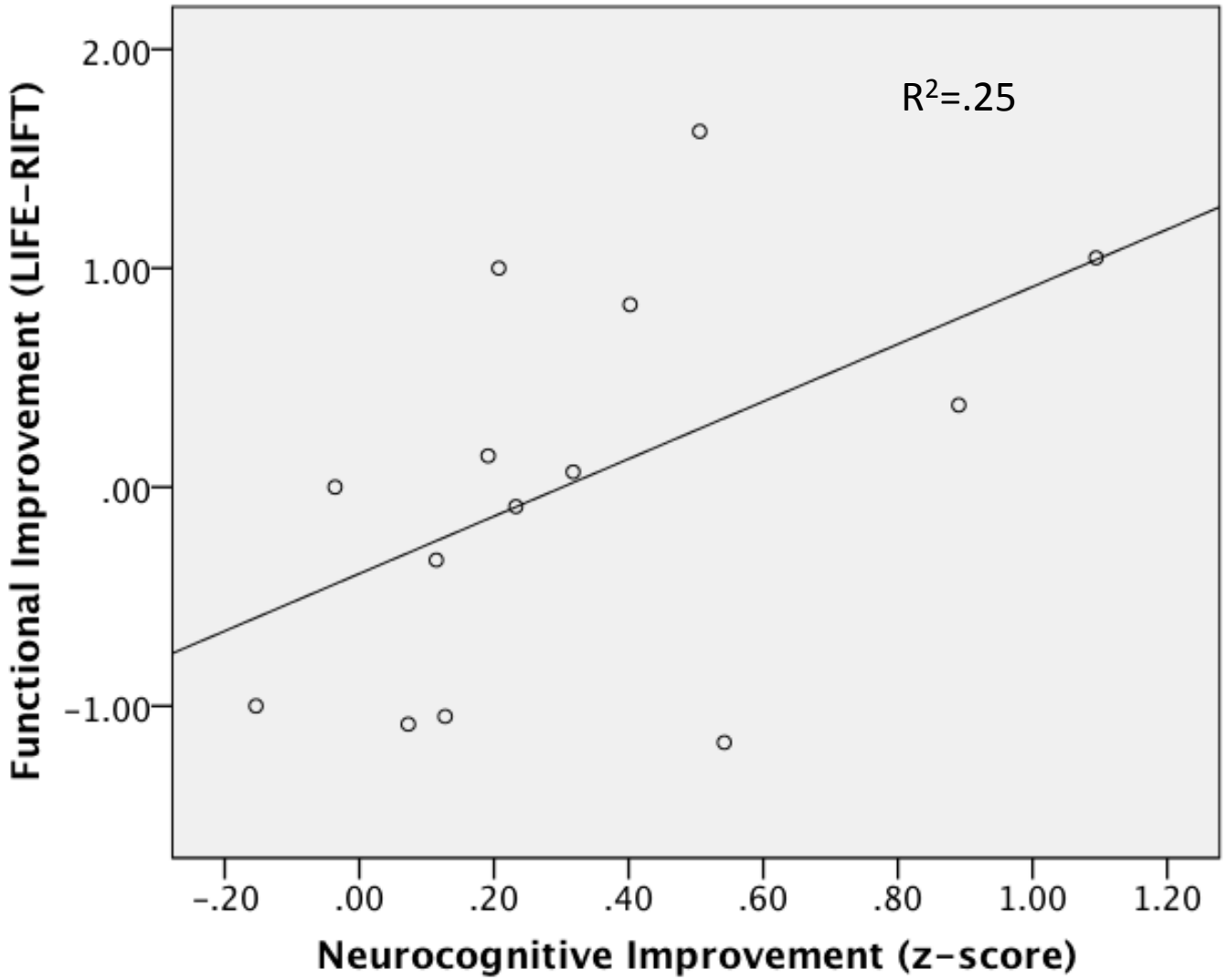
Group x Time Interaction p = .012, *Cohen's d = 1.07*

Attention/Information Processing Speed



Group x Time Interaction p = .012, *Cohen's d = 0.65*

Cognitive Improvement is Associated with Functional Improvement



Action-Based Cognitive Remediation vs. Traditional Cognitive Remediation

Action-Based Cognitive Remediation:

1. Reduce the emphasis on computer training in session
   - Cognitive Activation also done at home, online
2. Promote the development and pruning of cognitive and behavioural strategies to solving problems
3. Remove the abstract nature of bridging by bringing the real world into the session
4. Draw on procedural learning skills that are typically intact
5. Focus on “cognitive confidence” and normalizing struggle

Study Characteristics

ABCR (n=24) **Traditional CR (n=22)**

<u>Shared Characteristics</u>

2 hour sessions, 2x weekly, for 10 weeks

15-20 minute didactic

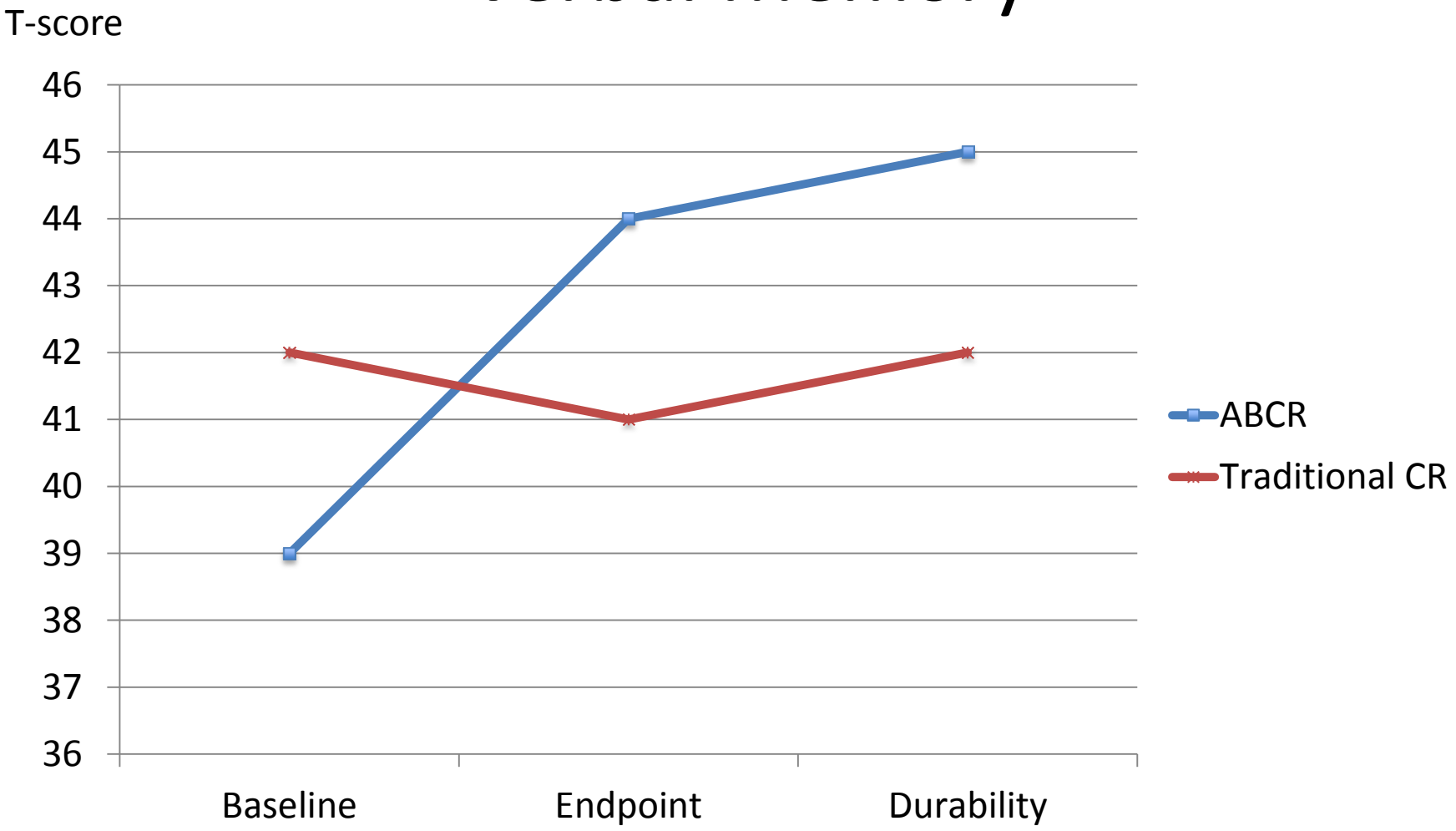
Computerized Homework 40 minutes per day (sbtpro.com)

- Strategic Development and Pruning
- Simulated Real World Activities

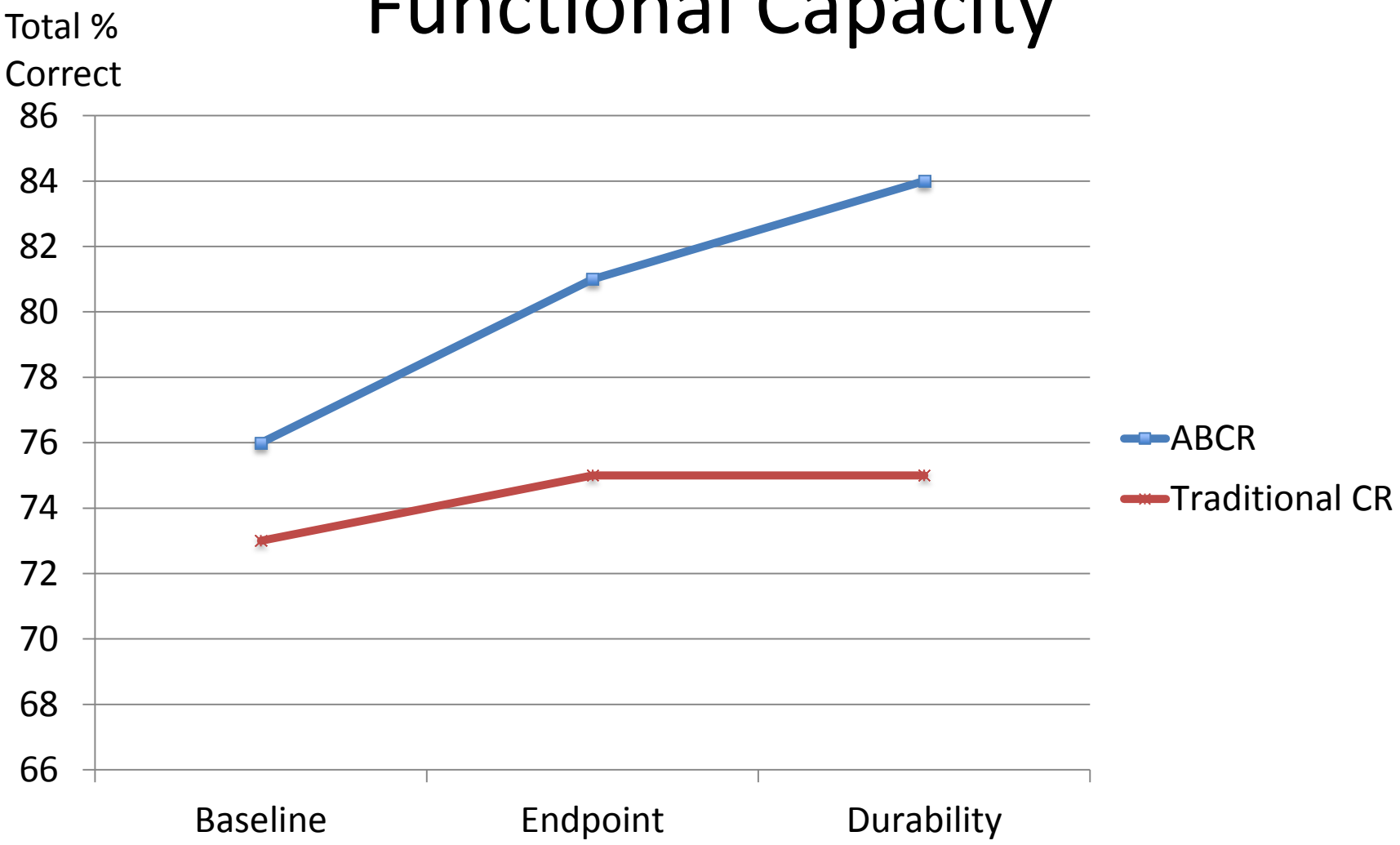
- Group discussion of strategy
- Discussion of real world applications

Sample: Adults with depressive disorders engaged in a vocational rehabilitation program

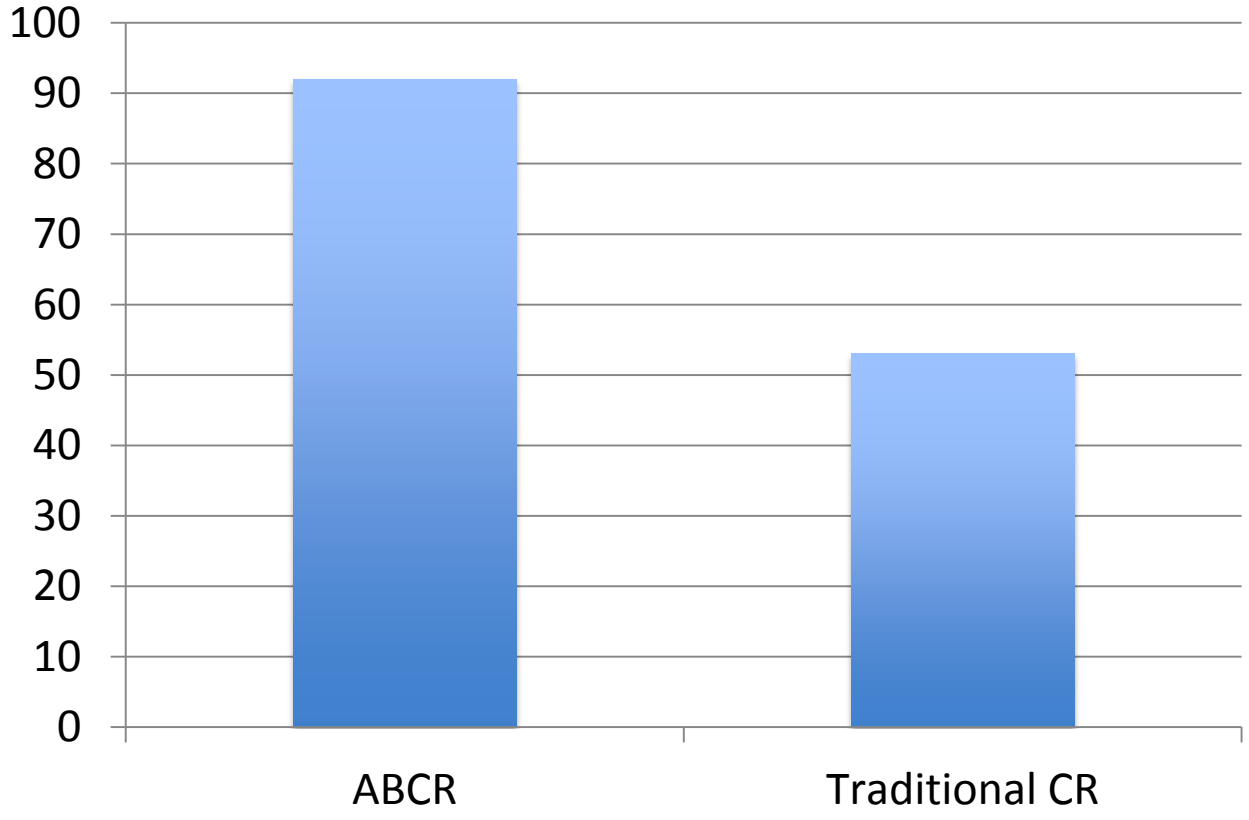
ABCR Results: Verbal Memory



ABCR Results: Functional Capacity

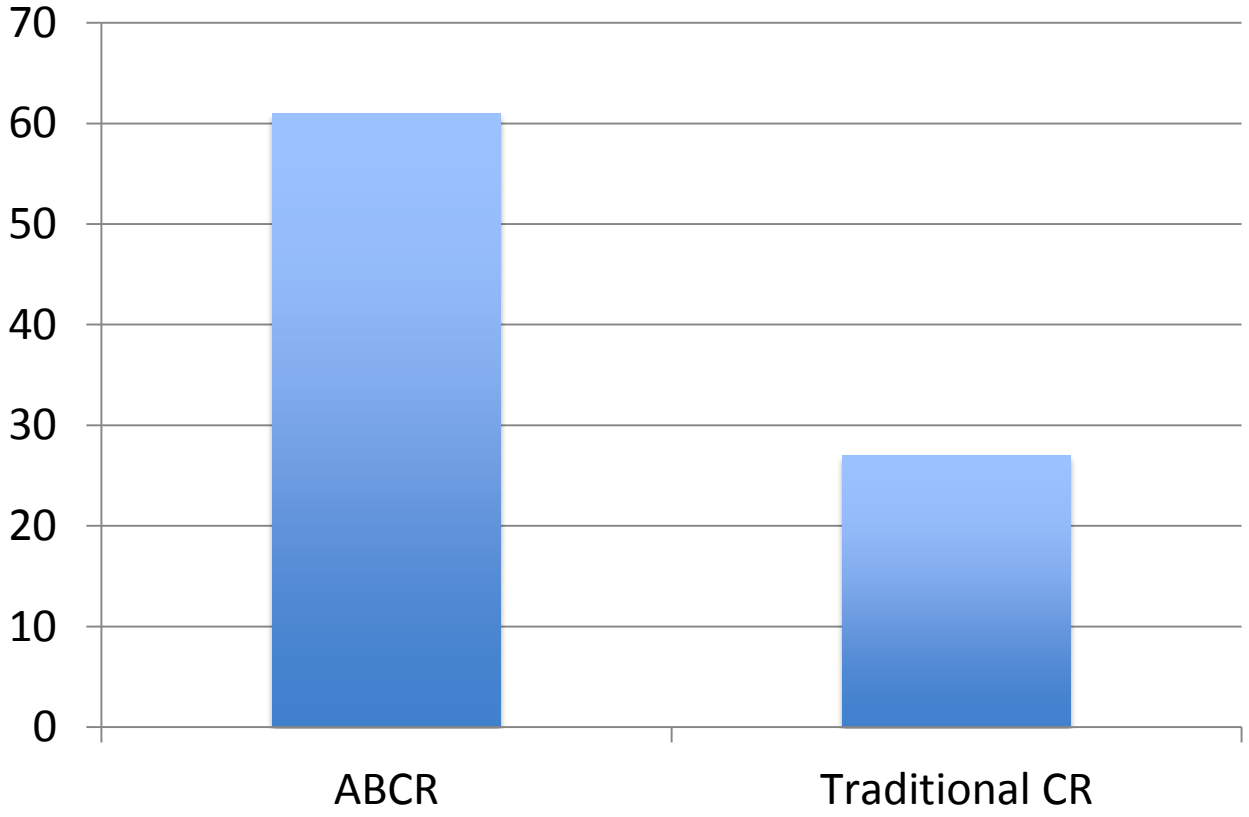


ABCR Results:
% Retention in Treatment



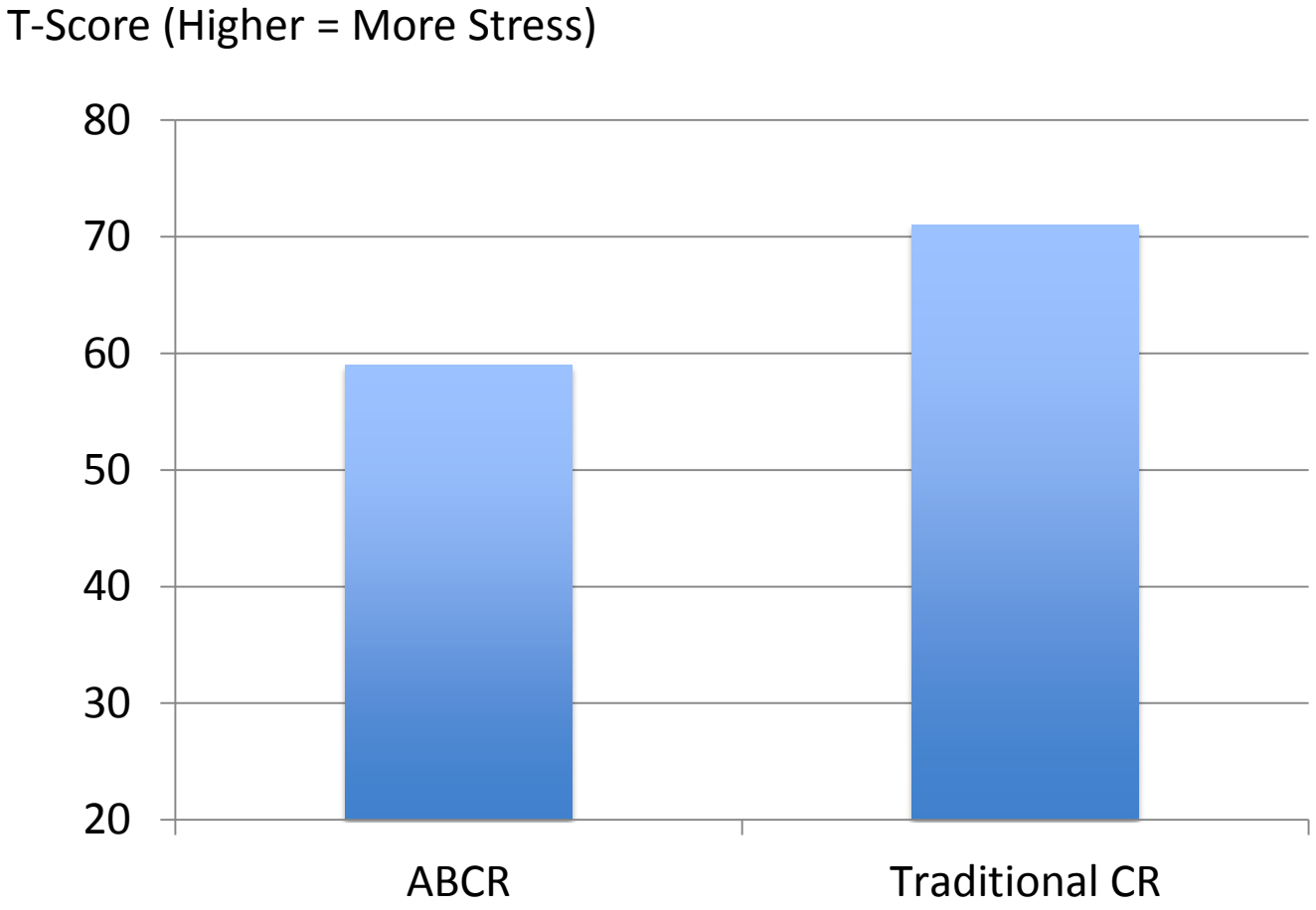
χ^2=.42, *p*=.03.

ABCR Results:
% Working 3 to 6m post-treatment



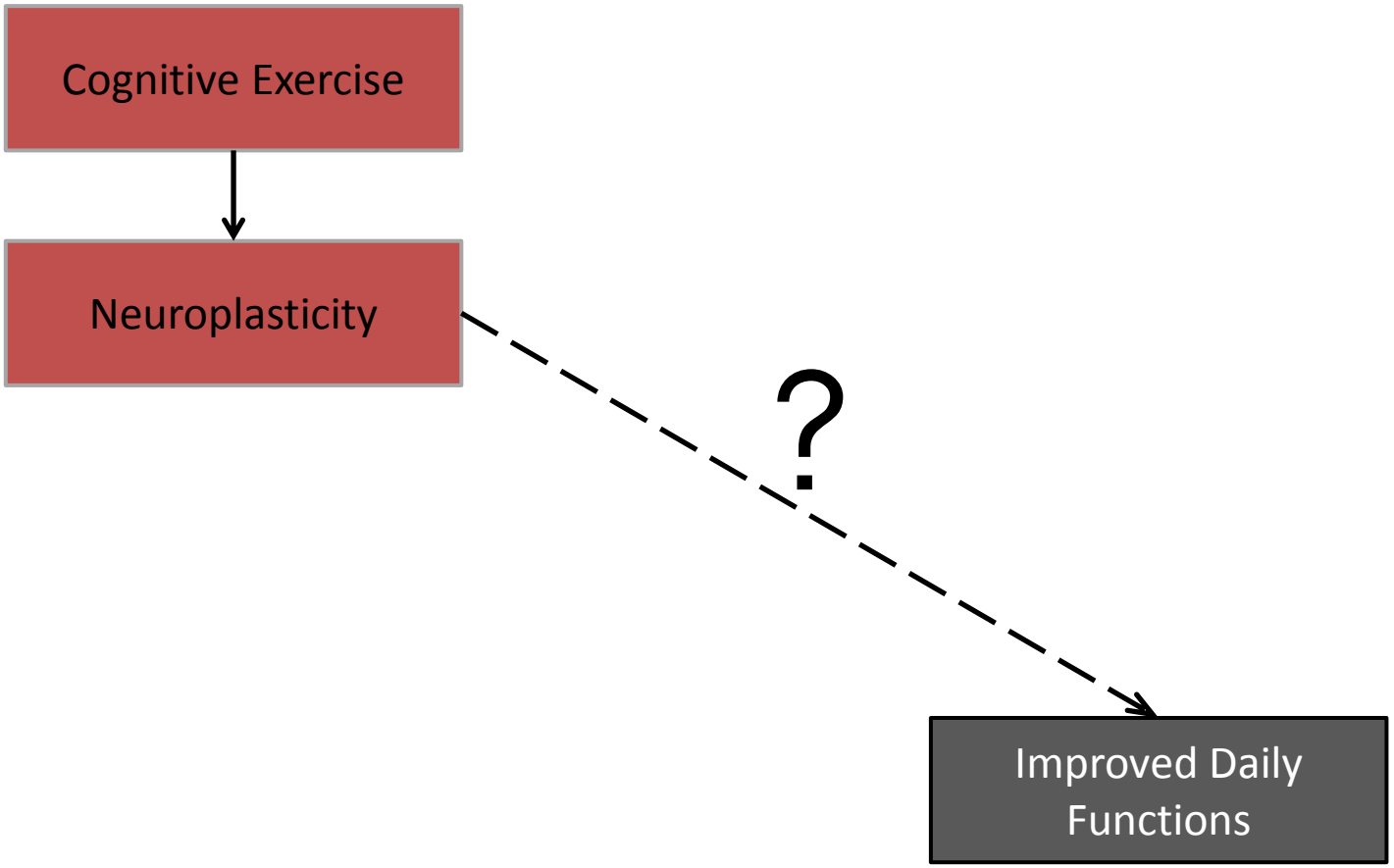
p=.08

ABCR Results:
Job Stress 3-months Post-Tx

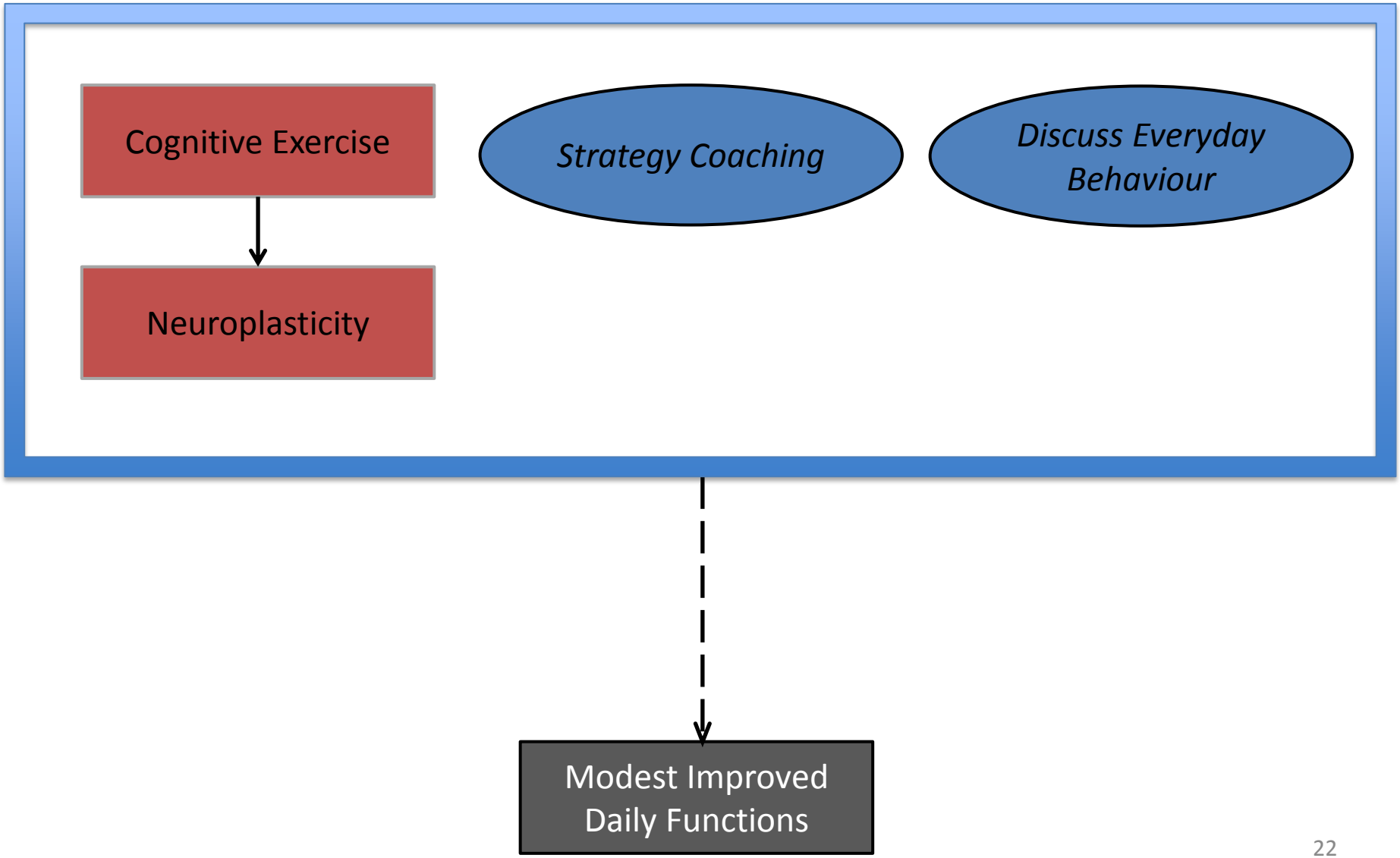


p=.07

Type I: Stand-alone cognitive training



Type II: Three Pillars of CR



Type III: Three Pillars of CR in an Active Learning Environment