

The Thinking Skills for Work: Cognitive Enhancement For Successful Employment

Susan R. McGurk, Ph.D.
Center for Psychiatric Rehabilitation
Departments of Occupational Therapy and
Psychological and Brain Sciences
Boston University
mcgurk@bu.edu



Outline

Part I: Cognition and Work

Part II: What is Cognitive Remediation?

Part III: Overview of Thinking Skills for Work

Part IV: Research Findings

Part V: Cognitive Self Management Strategies

Part VI: Summary

Part I: Cognition and Work

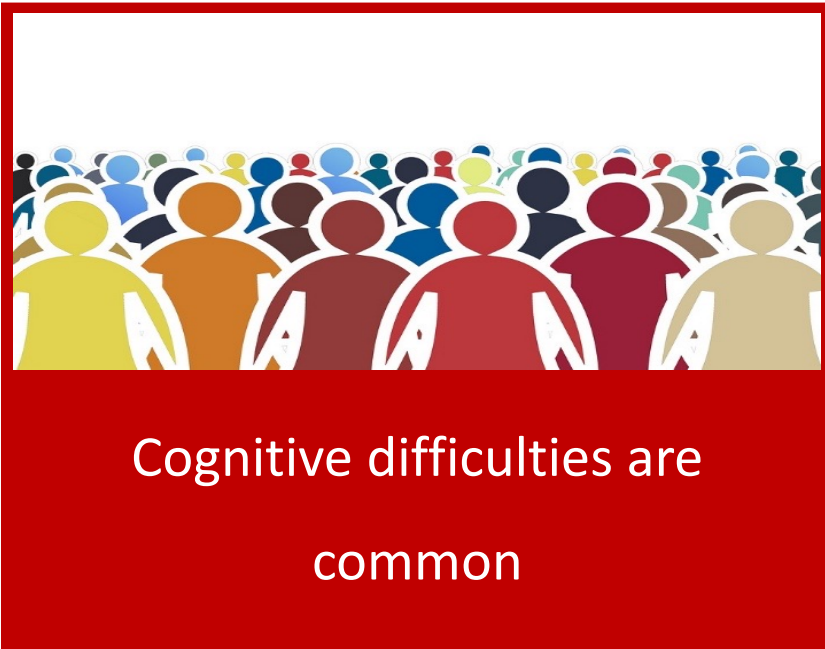


What is “Cognition?”

Mental activities, such as:

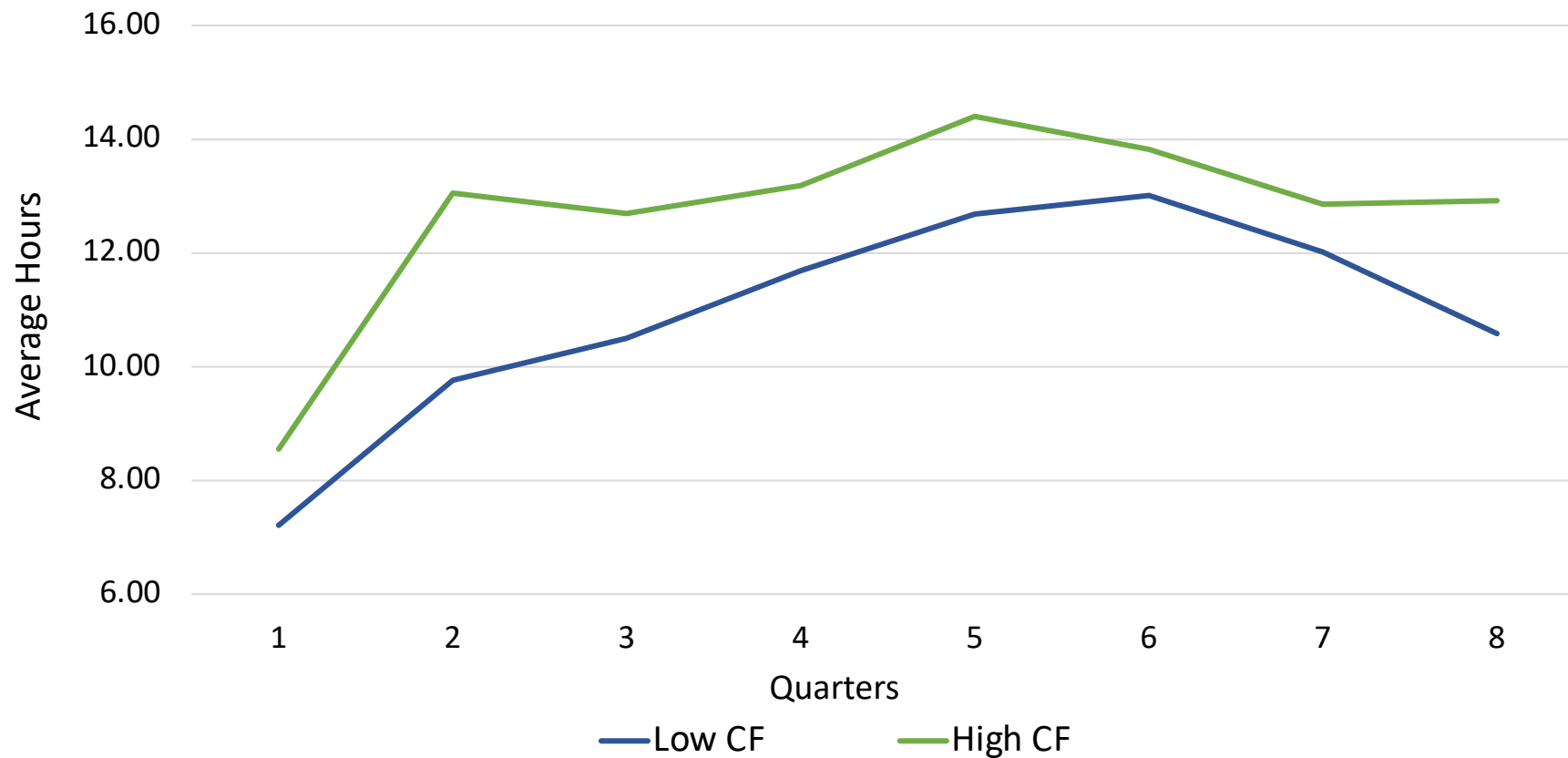
- Attention
- Processing speed
- Learning and memory
- Executive functioning

Importance of Cognitive Functioning in SMI



Mental Health Treatment Study

Low vs. High Cognitive Functioning (N=945)



How Might Problems with Thinking Skills Affect Work Performance?

1. Slowness
2. Poor quality of work (e.g., making mistakes)
3. Forgetting steps of tasks
4. Poor problem solving
5. Lower stamina/fatigue
6. Lateness, absenteeism
7. Disorganization



Part II: What is Cognitive Remediation?



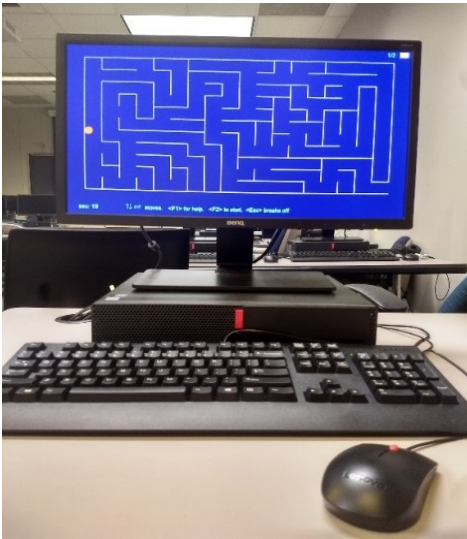
Definition of Cognitive Remediation

Targets cognitive deficits

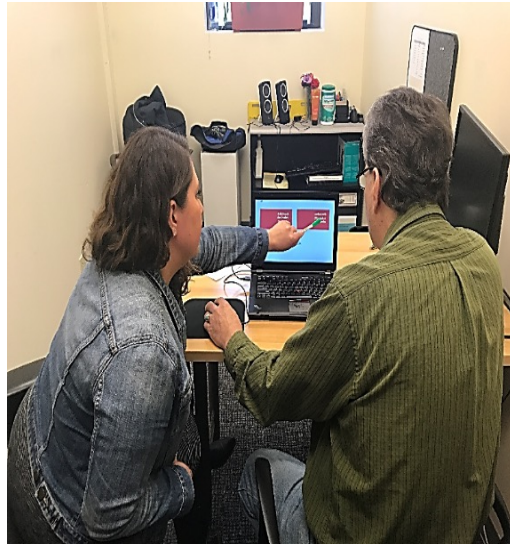
- Scientific principles of learning
- Efforts to transfer gains to community functioning
- Ultimate goal is to improve functioning

Cognitive Remediation Therapy Expert Working Group

“Core” Components of Cognitive Enhancement



Cognitive Exercise
Practice



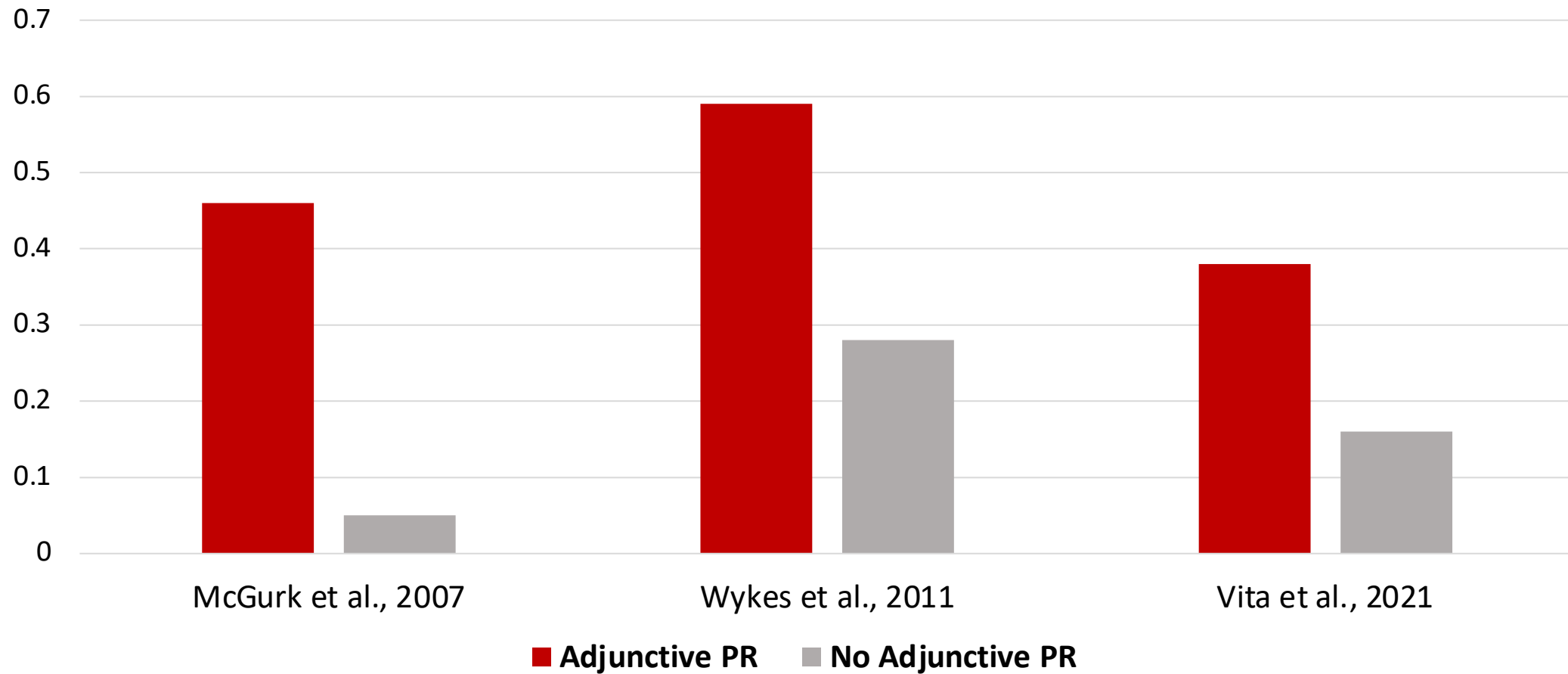
Facilitation



Teaching of Strategies

Efforts to
transfer
cognitive
gains

Psychosocial Rehabilitation Moderates Cognitive Enhancement Effects on Community Functioning





Part II: Overview of Thinking Skills for Work

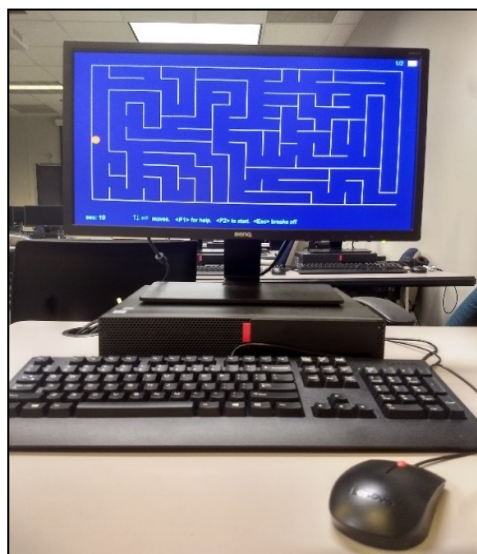
Thinking Skills for Work

Improve cognitive abilities

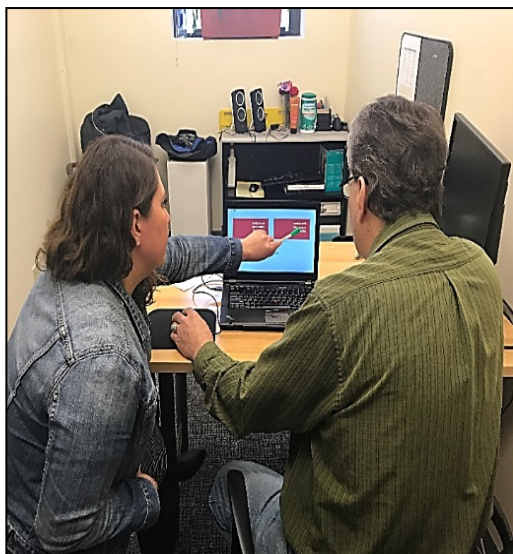
Enhance confidence and reduce negative thinking

Optimize getting and keeping competitive jobs

TSW Components of Cognitive Enhancement



Cognitive Exercise
Practice



Facilitation
Strategy
Coaching



Self-Management
Strategies



Integration with
Vocational Rehabilitation

The Cognitive Specialist

Responsible for program
delivery

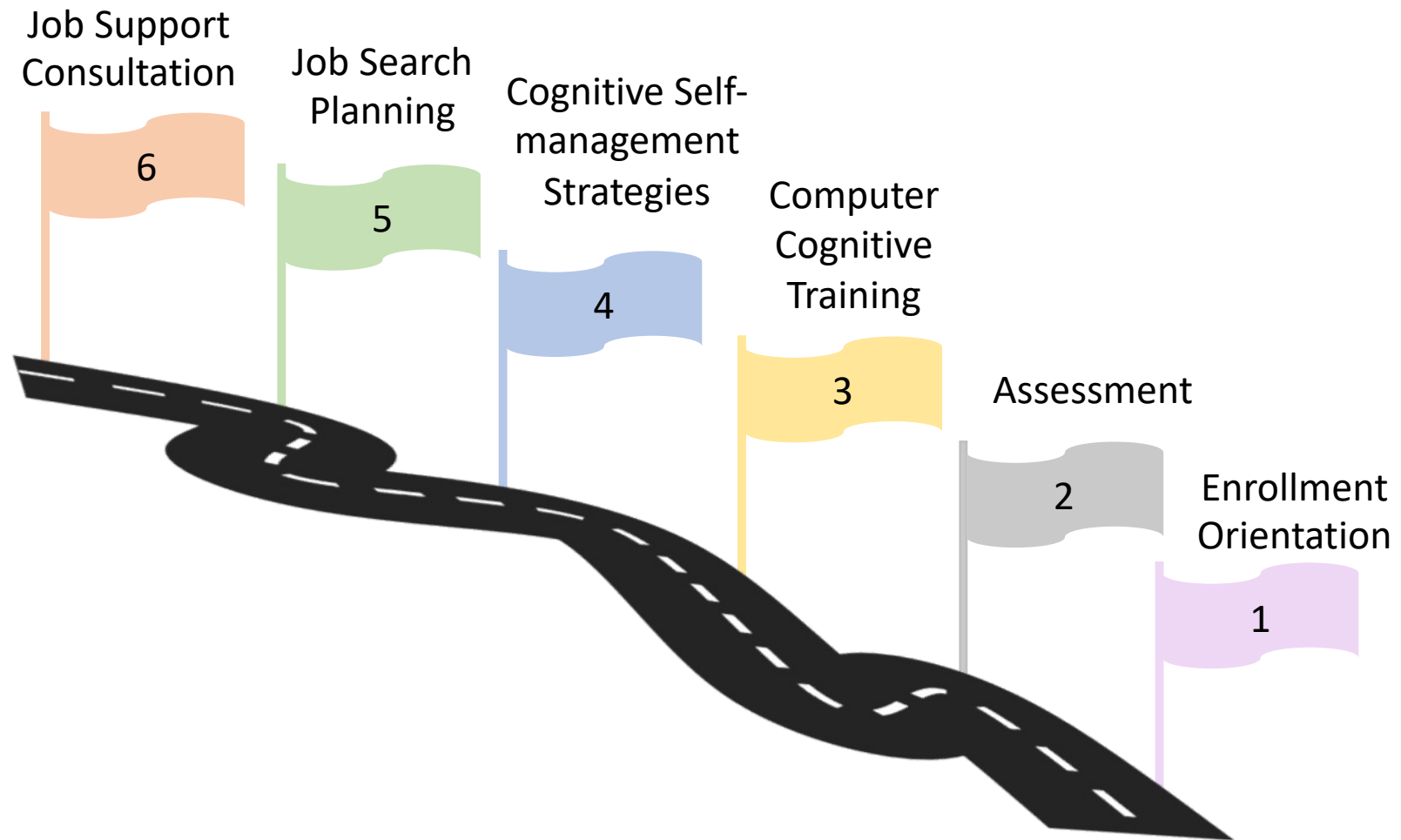
Employment specialist or
clinician

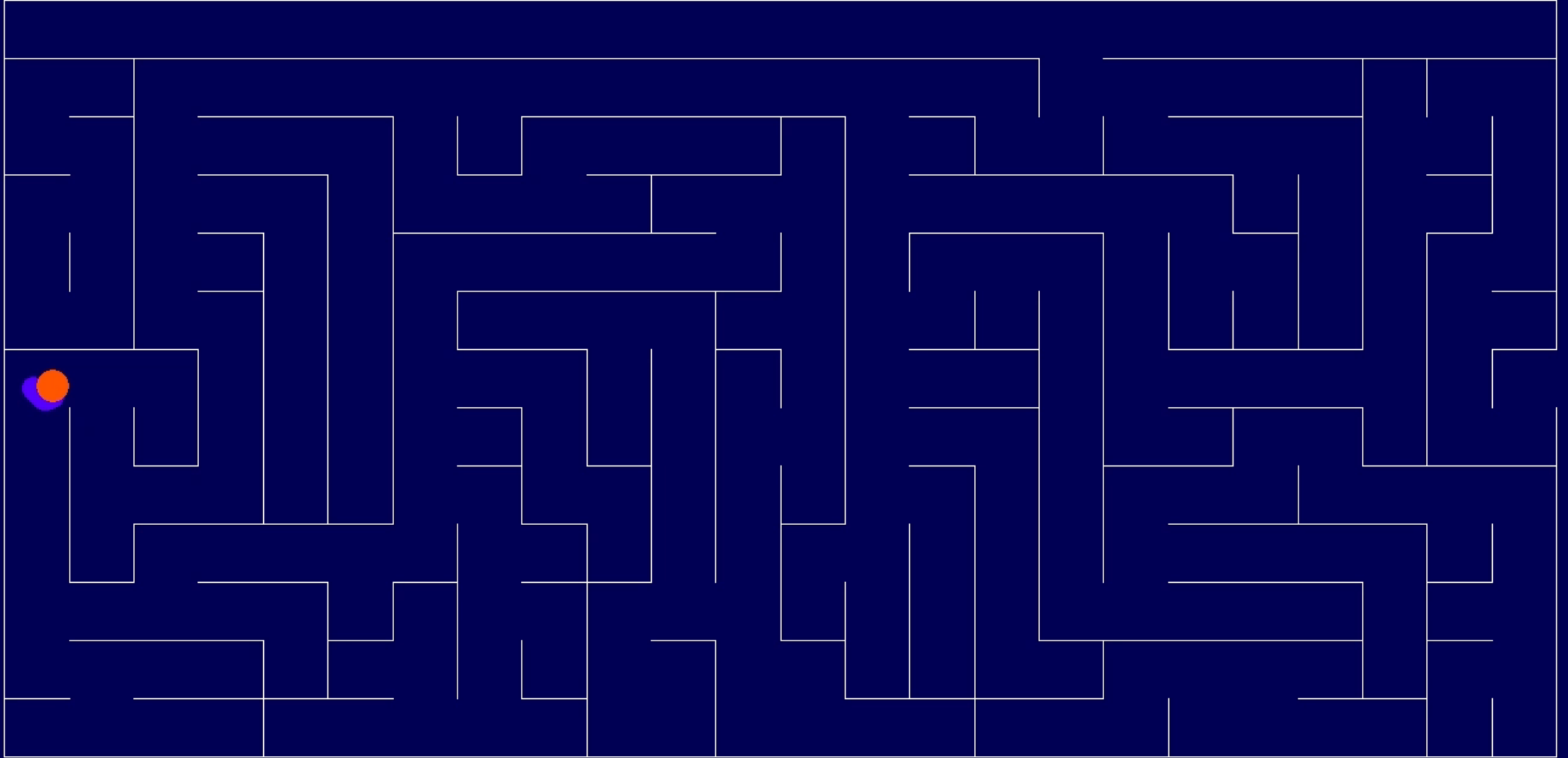


Participates in
employment meetings

Cognitive expertise

TSW Program Components

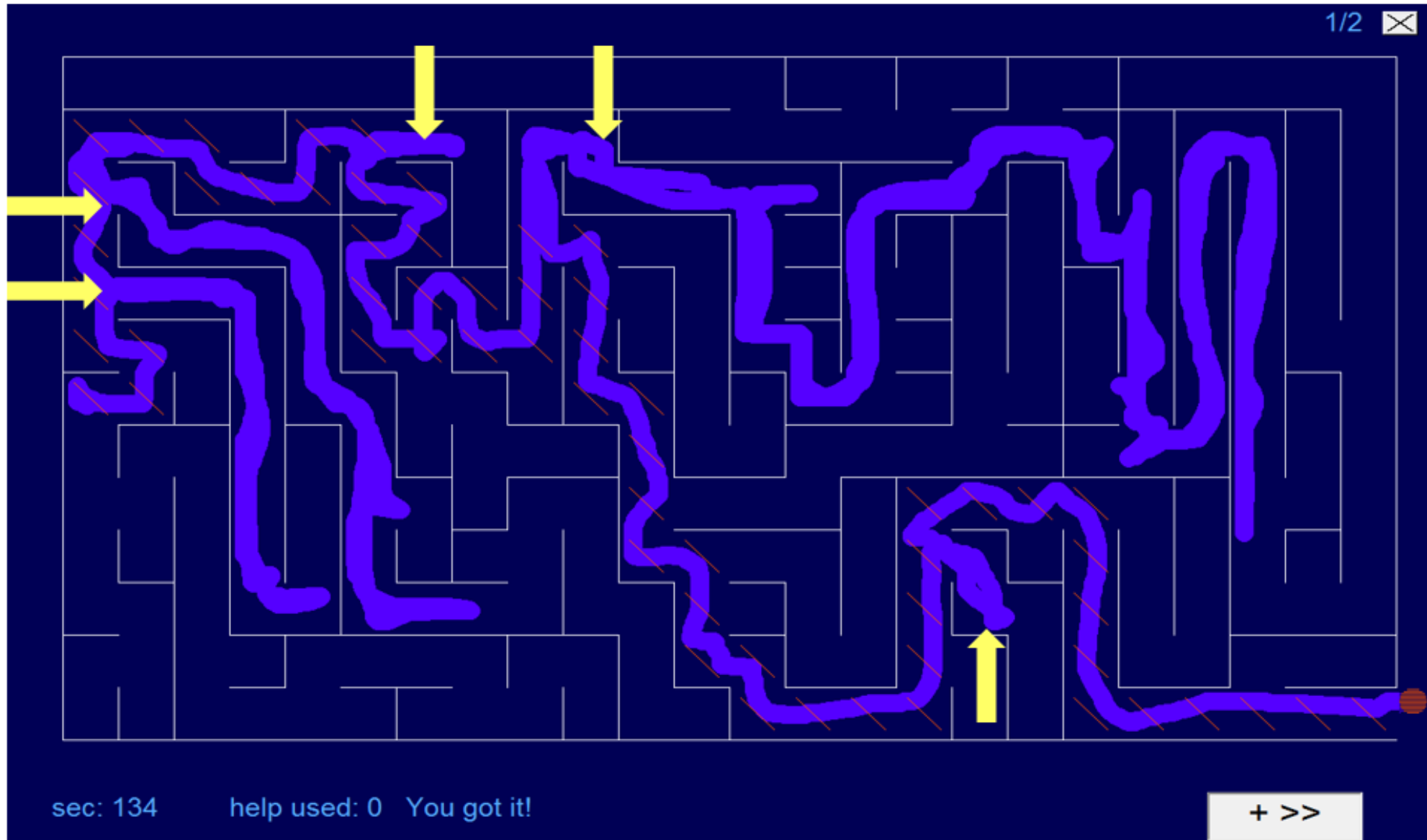




sec: 7

 $\updownarrow \rightleftarrows$ moves. 1/2<F2> to start. <Esc> breaks off

Arrows Indicate Errors in Planning



TSW Cognitive Self-Management Strategies

Primary focus: job search, job performance tasks

Manualized curriculum

10 handouts for participants with prompts, checklists, and suggested home assignments

Psychoeducational, motivational, and cognitive-behavioral teaching methods

Teaching strategies coordinated with ES, who facilitates use in work or other community settings

“Memory Spot”

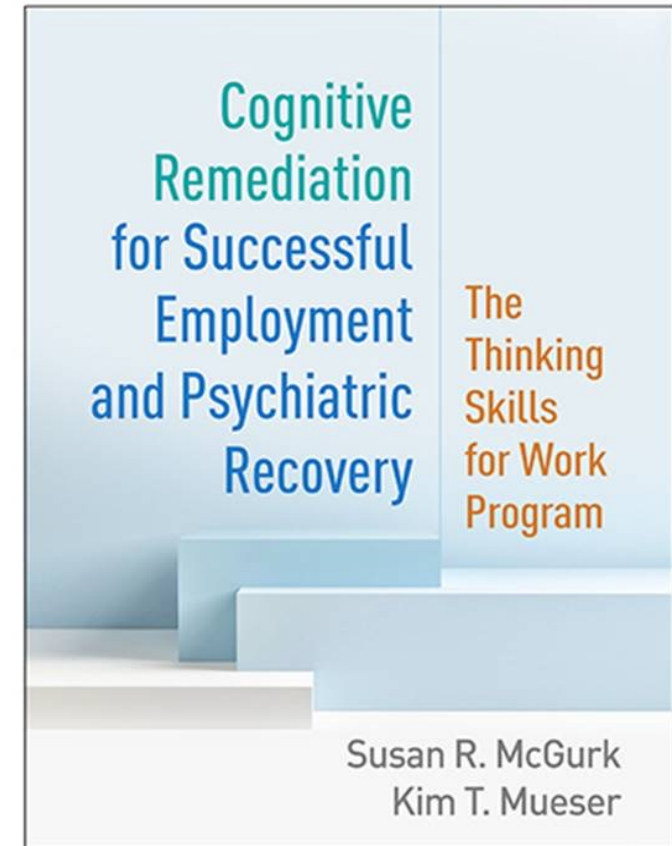


Designated place to store
frequently used items.

Reduces tax on memory

Thinking Skills for Work

- Published book
- Fidelity scales
- Online training course
- Field tested training model



SR McGurk, KT Mueser (2021). *Cognitive Remediation for Successful Employment and Psychiatric Recovery: The Thinking Skills for Work Program*. Guilford Publications, New York.



Part IV: Research Findings

Research on the TSW Program

- **Seven** controlled trials (RCTs) evaluating effectiveness of TSW program in people with SMI. Schizophrenia most common diagnosis
- VR + TSW as compared to VR alone
- Across all studies, high rates of participation in TSW program (>70%)
- Follow-up periods 24 to 36 months
- All studies found greater improvements in cognitive functioning and employment for participants who received VR + TSW as compared to VR alone (3 studies of SE; 2 of which were high IPS fidelity)

TSW for People Who Do Not Respond to Supported Employment

- Is the TSW program effective at improving employment outcomes in people who have not benefitted from evidence-based SE (i.e., “non-responders)?
- RCT in 2 high fidelity SE programs
- People with SMI who had not benefitted from supported employment:
 - No work \geq 3 months despite receiving SE, or
 - Unsuccessful job ending (fired or quit with no other job) within last 3 months of enrollment in SE

Study Design

107 persons with SMI, non-responders to SE

Randomized to 1 of 2 groups:

- Enhanced SE (E-SE) only
- E-SE + TSW program
- SE services enhanced with training employment specialists in recognition of cognitive challenges and strategies for compensating for cognitive impairments
- Comprehensive cognitive assessments (MATRICS) conducted at baseline, post-cognitive training, 1-year, and 2-years later
- Competitive employment tracked over 2-year period
- Statistical analyses compared groups on changes in neurocognitive functioning and employment outcomes

NIMH funded trial: R01 MH077210-01

Results

Compared to SE only, TSW+ SE:

Greater and durable improvements in cognitive functioning

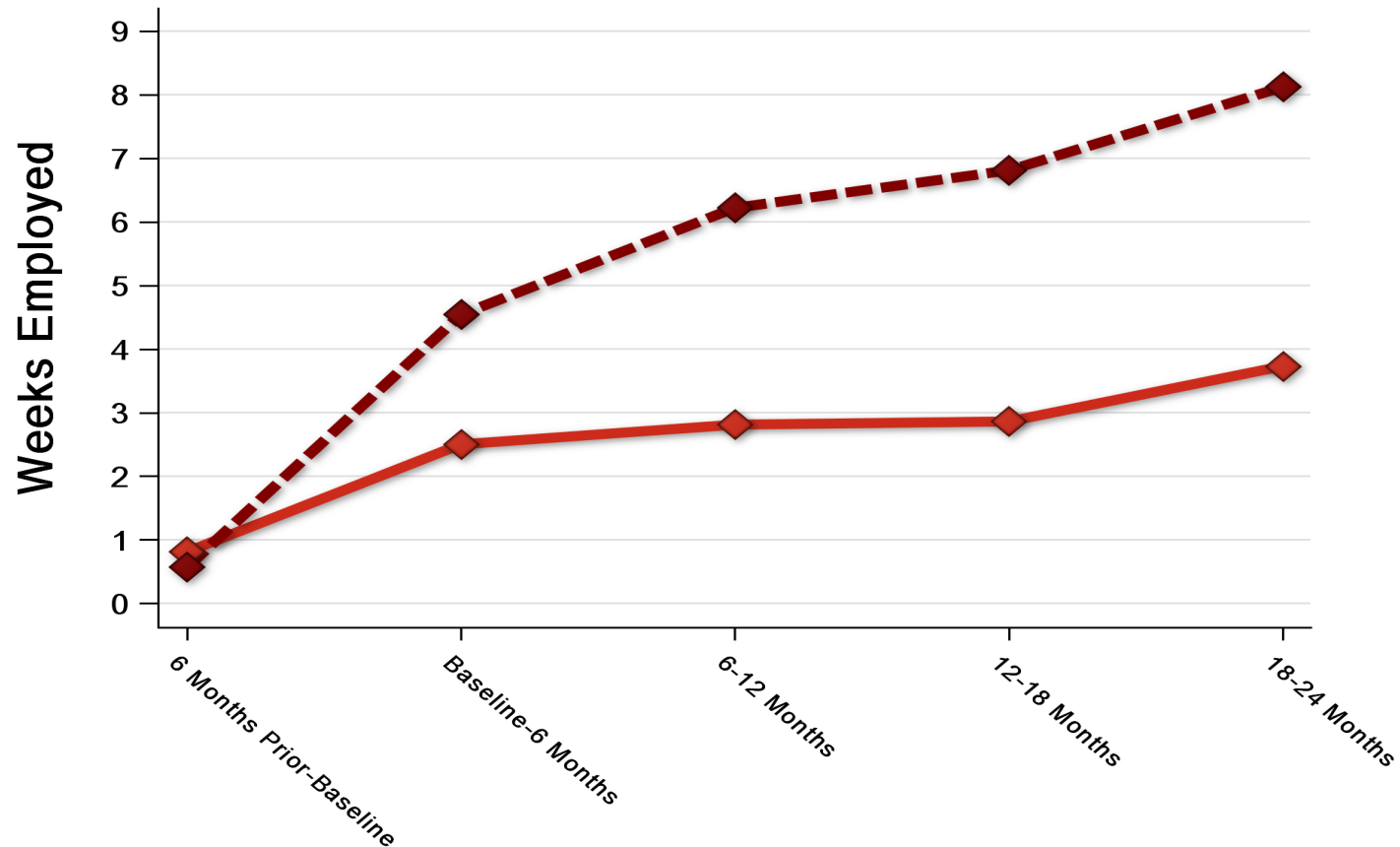
More competitive work

- worked more hours, weeks, earned more wages

- held their jobs longer

- less unsatisfactory job endings than those in E-SE only

Weeks of Competitive Employment



McGurk, S.R., Mueser, K.T., Xie, H., Welsh, J., Kaiser, S., Drake, R.E., Becker, D., Bailey, E., Fraser, G., Wolfe, R., & McHugo, G.J. Cognitive Enhancement Treatment for People with Mental Illness Who Do Not Respond to Supported Employment: A Randomized Controlled Trial. *American Journal of Psychiatry*. 172(9):852-61, 2015. doi: 10.1176/appi.ajp.2015.14030374.

How does TSW work?

TSW dismantling study

Full intervention compared with teaching cognitive self-management only

- Is teaching self-management alone sufficient to improve cognition and work?
 - RCT conducted in 2 high fidelity SE programs
 - Inclusion criteria:
 - Unemployed
 - Enrolled in IPS
 - Minimum of mild cognitive impairment

Study Design

203 people with SMI enrolled in IPS randomized to 2 groups:

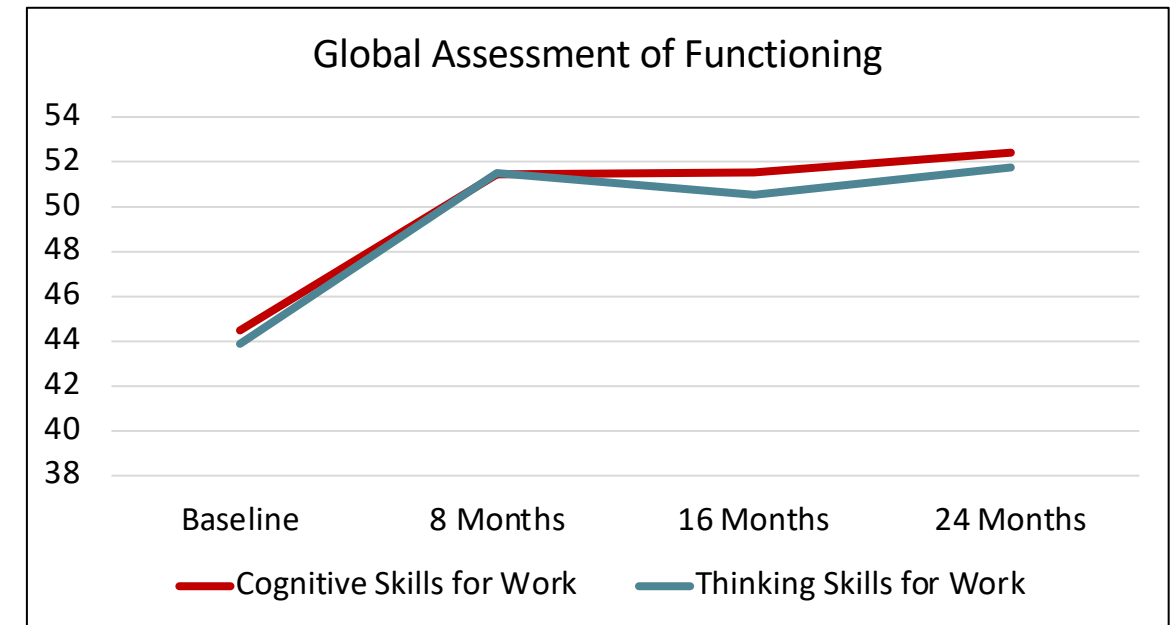
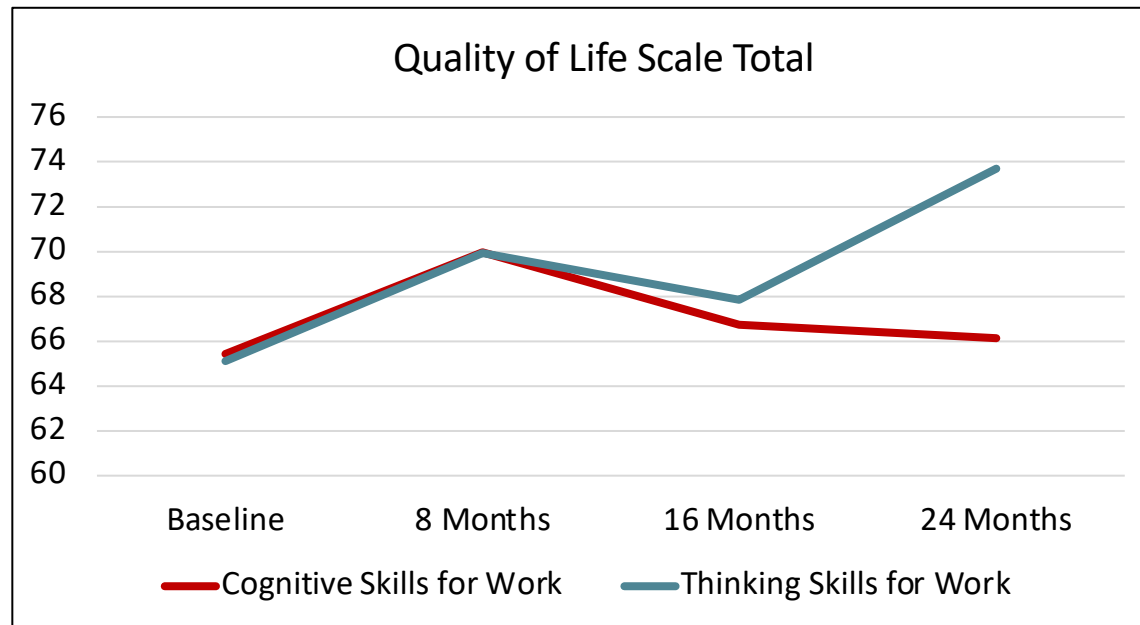
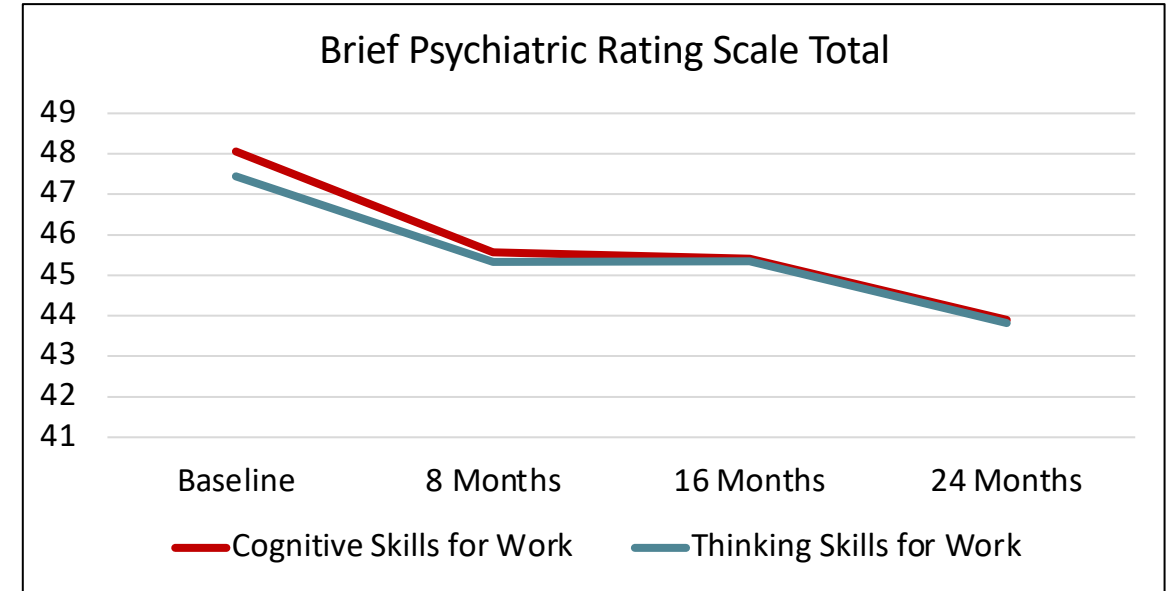
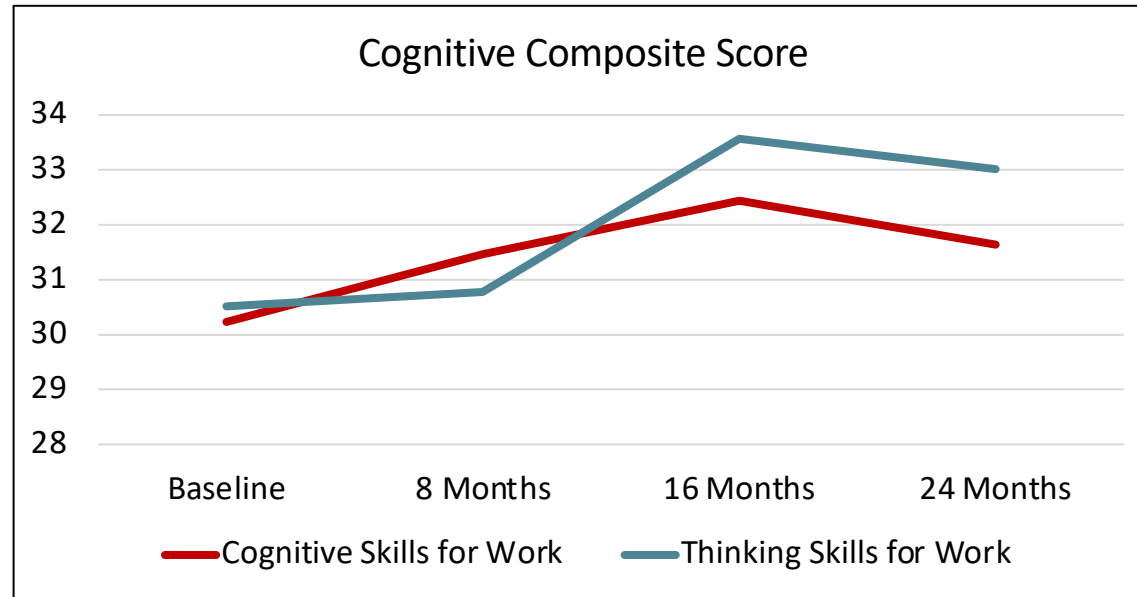
- Full TSW program (TSW)
- Cognitive Self Management Only (CSM)

TSW and CSM delivered by cognitive specialist, and integrated with IPS

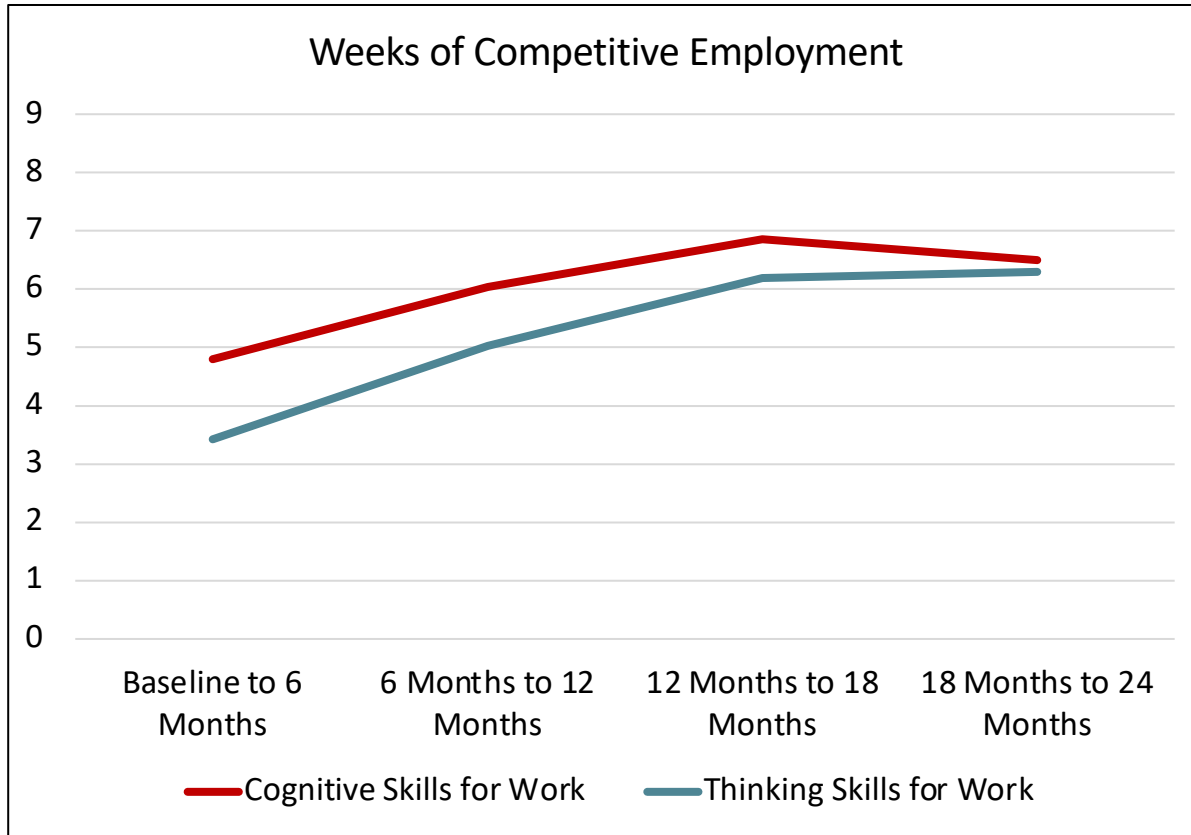
Cognitive, symptoms, and quality of life assessments conducted at baseline, 8, 16, and 24 months

Competitive employment outcomes continuously tracked over 2-year period

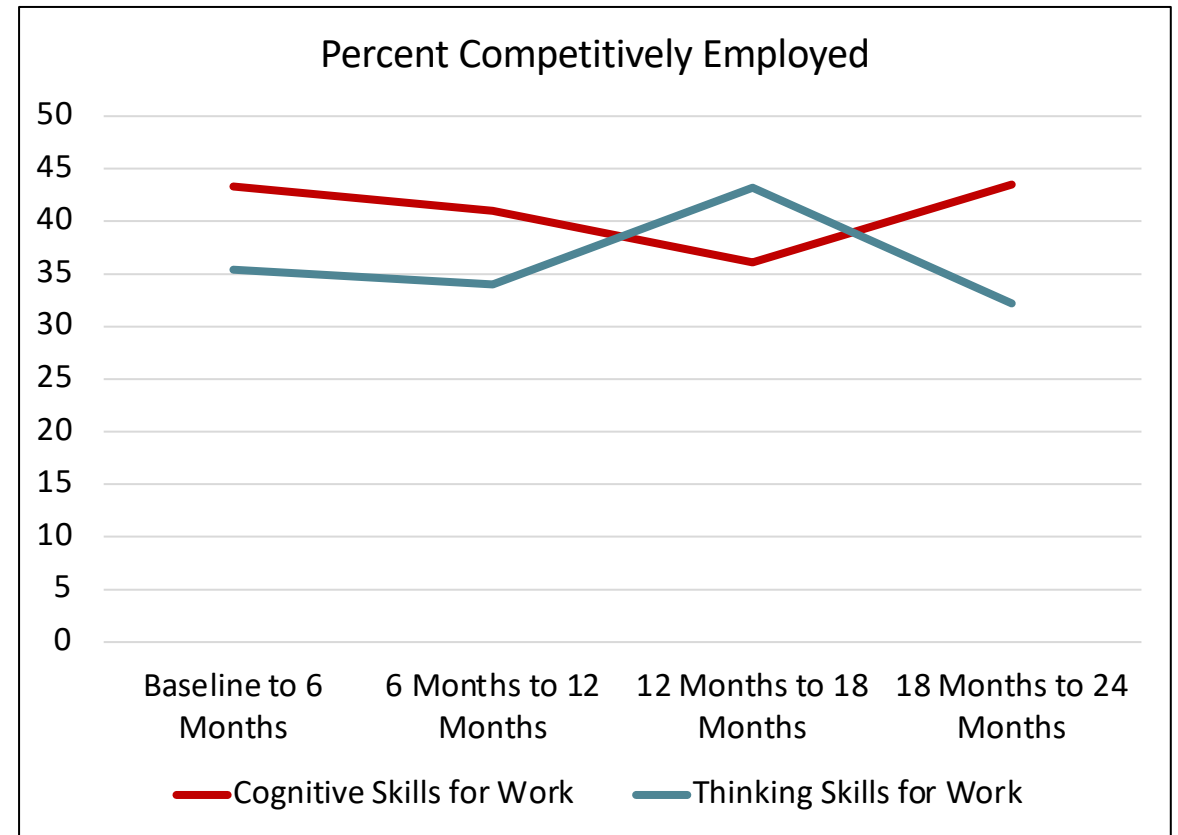
Findings from the Dismantling Study



Findings from the Dismantling Study



Time: $F(1,3) = 1.26$; $p = 0.506$; Group: $F(1,1) = .15$; $p = 0.361$



Time $F(3) = .78$; $p = 0.51$; Group $F(1) = 0.15$; $p = 0.70$

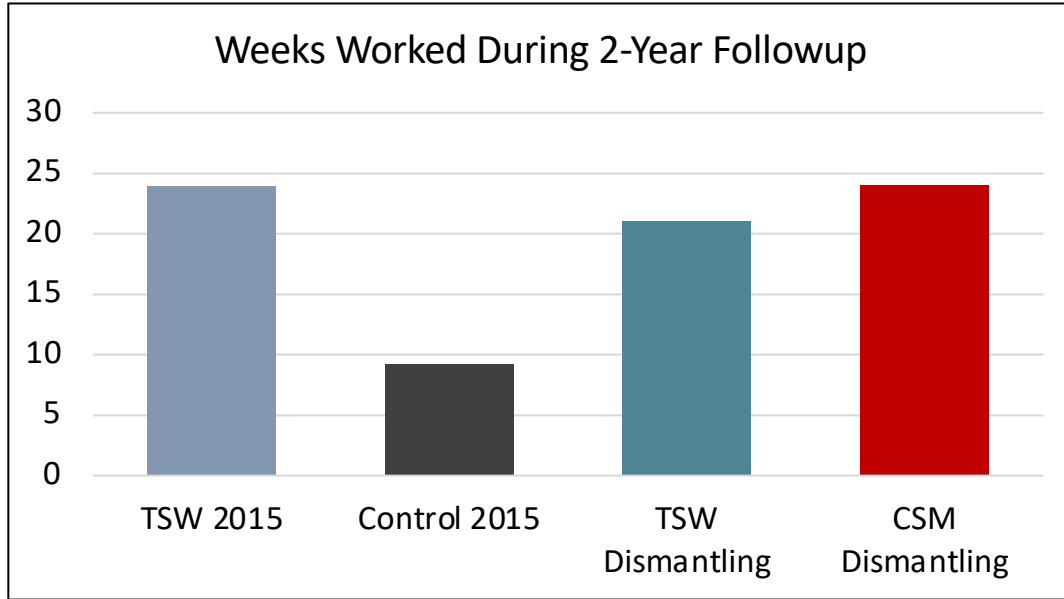
Did Both the CSM and TSW Groups Improve Work?

- Study compared 2 active treatment groups
 - Did not include an IPS Only control group
- Unclear whether both interventions were effective in improving work outcomes
- Comparison of findings with 2015 study that compared TSW with IPS only.
 - Both studies conducted at same sites
 - Same IPS programs
 - Used almost identical research methods and similar inclusion criteria

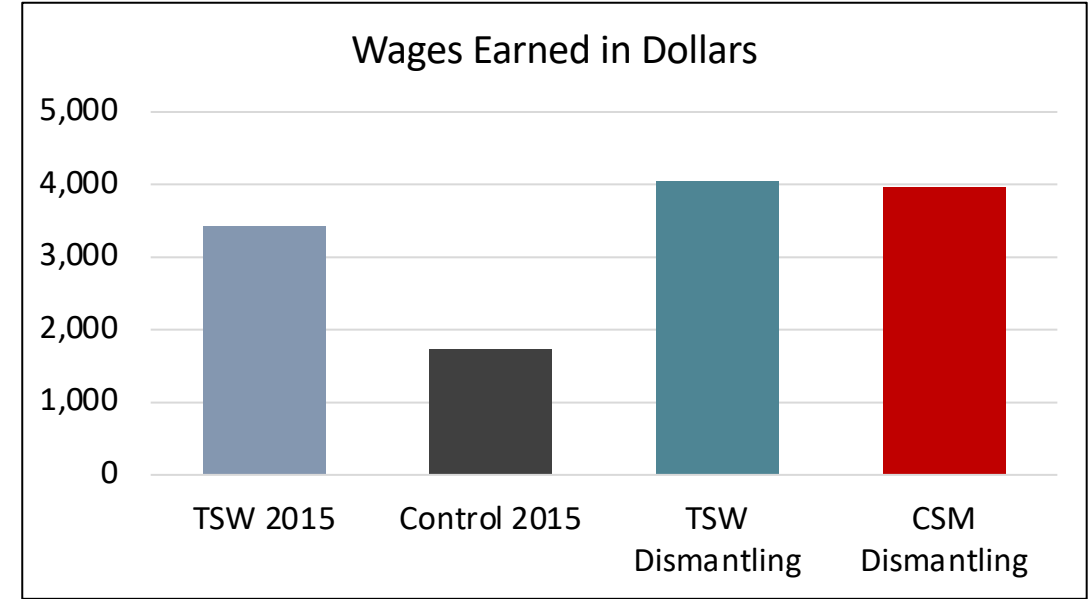
Were the People in the Two Studies Different?

- Compared to 2015 study, participants in the dismantling study:
 - At baseline, had worse:
 - cognitive functioning
 - symptoms
 - Functioning
 - higher % of African Americans

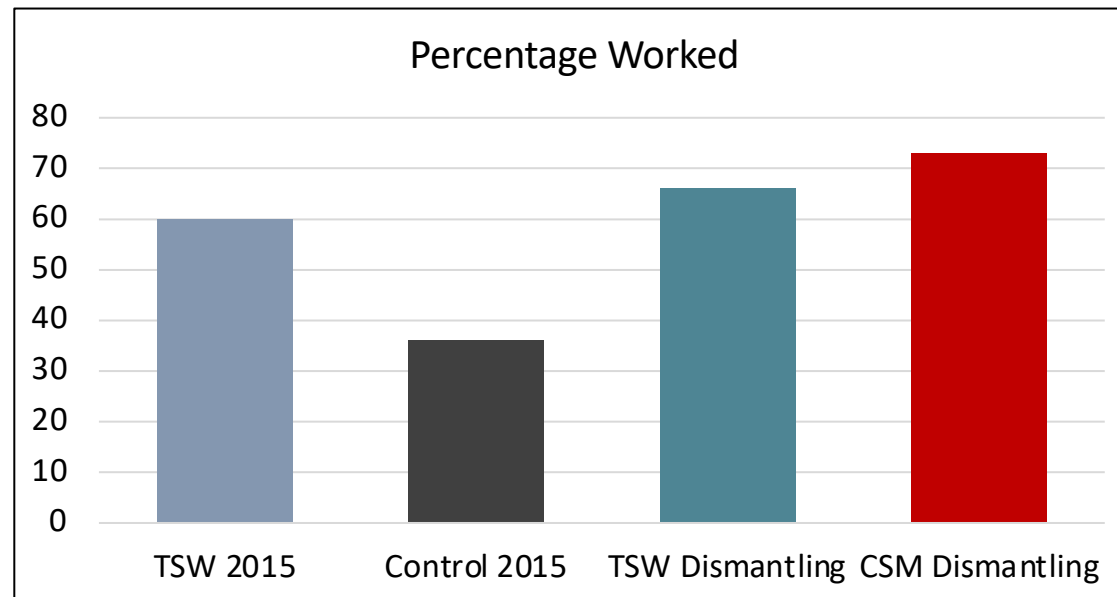
Findings from the 2015 vs. Dismantling Study



Control to TSW Dismantling and CMS respectively, $t=3.82$, $p<.001$ and $t=4.71$, $p<.001$; TSW 2015 to TSW and CSM respectively, $t=-.84$, $p=.413$, $t=.03$, $p=.978$



Control to TSW Dismantling and CMS respectively, $t=2.97$, $p=.003$ and $t=3.51$, $p<.001$; TSW 2015 to TSW and CSM respectively, $t=-.76$, $p=.447$, $t=.79$, $p=.430$



Control to TSW Dismantling and CMS respectively, $t=-5.18$, $p<.001$ and $t=-5.81$, $p<.001$; TSW 2015 to TSW and CSM respectively, $t=-1.17$, $p=.242$, $t=-1.81$, $p=.070$

Conclusions of Dismantling Study

- Full TSW and Cognitive Self Management Strategies only groups were both effective at improving work, and more than IPS alone
- The addition of computer cognitive training did not improve work outcomes, more than just teaching Cognitive Self Management strategies
- Work outcomes were improved in people enrolled in IPS by systematically teaching cognitive self management strategies

Collaborators

2015 Study

Boston University Center for Psychiatric Rehabilitation

- Kim T Mueser

Dartmouth Psychiatric Research Center

- Deborah Becker
- Robert E Drake
- Gregory McHugo
- Rosemarie Wolfe
- Haiyi Xie

Mental Health Center of Greater Manchester

- Margaret Almeida
- Ed Bailey
- Harry Cuningham
- Sue Guarinos
- John Moscarino
- Jay Welsh

Thresholds Inc.

- Kristen Davis
- Ginny Fraser
- Susan Kaiser
- Darius McKinney
- Anabel Ruiz
- Alex Treachout
- Sandra Wilkness
- Lydia Zolp

Dismantling Study

Boston University Center for Psychiatric Rehabilitation

- Philippe Bloch
- Kim T Mueser

Columbia University

- Robert E Drake

Dartmouth

- Rosemarie Wolfe
- Haiyi Xie

Harvard MGH

- Nicole R DeTore

Mental Health Center of Greater Manchester

- Ed Bailey
- Harry Cuningham
- Heather Gagnon
- Sue Guarinos
- Jay Welsh

Thresholds Inc.

- Harry Cunningham
- Ginny Fraser
- Carla Elliot
- Tovah Lieberman
- Karley Nelson
- Nicole Pashka
- Lisa A. Razzano
- Anabel Ruiz



Part V: Cognitive Self Management Strategies

Cognition and Work Performance

Paying Attention

"At work my mind wanders; I'd miss a lot of instructions and would have to ask my boss again"

Learning and Memory

"I meet a new coworker and hear their name, but I can't remember it two minutes later"

Planning Ahead

"I go to take my medication after my lunchbreak and realize that I didn't bring them with me"

Problem Solving

"The door was locked when I got to work so I went home"

Thinking Speed

"By the time I figured out what boxes go on the truck, the truck had already left"

Cognitive Self Management

3 handouts focus on enhancing motivation:

- Cognitive Skills and Work
- Recognizing your Strengths
- Challenging Negative Thinking

7 handouts focus on improving cognitive performance

- Improving Attention and Concentration
- Reducing Memory Difficulties
- Developing Routines at Home
- Developing Routines for Your Job Search
- Planning Ahead
- Solving Problems
- Improving Thinking Speed

Recognizing Your Strengths

Purpose:

To increase self-efficacy and hope for achieving work goals

Highlights:

- Discussing how awareness of one's strengths can make one feel good about oneself AND use in job applications and interviews
- Definition of strengths
 - Personal qualities (e.g., friendly, punctual)
 - Skills, talents (e.g., computer skills, speaking another language, playing a musical instrument)
 - Resources (e.g., supportive family, educational degree)



Challenging Negative Thinking

Purpose:

To help people learn a tool (cognitive restructuring) for dealing with negative feelings that interfere with looking for work and doing one's best at work

Highlights:

- Discussing that one's thinking in a situation influences how one feels and behaves in that situation: the thought-feeling-behavior triad
- Exploring how inaccurate thinking can lead to negative feelings and ineffective work behaviors
- Learning how to recognize and change common inaccurate styles of thinking to reduce negative feelings, and improve efforts to find and keep work



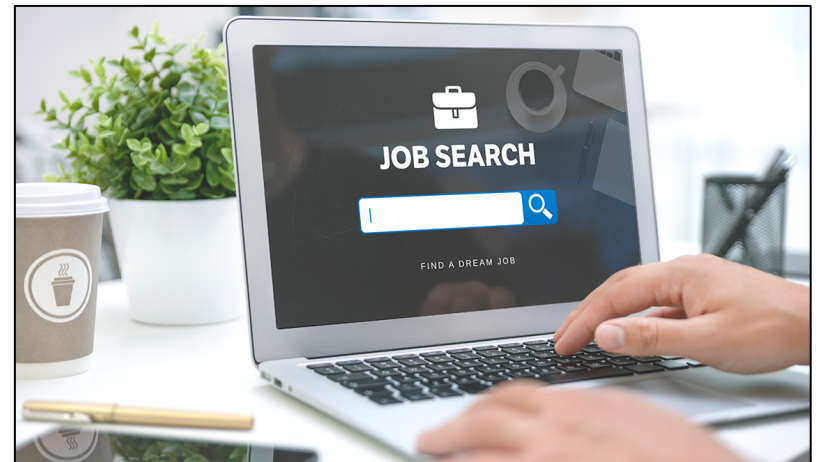
Developing Home and Job Search Routines

Purpose:

To develop personal habits for improving the organization of one's life at home and for the job search

Highlights:

- Routines are established ways of accomplishing daily tasks and keeping track of important items
- Worksheets used to pinpoint need for specific routines and to make plans to implement new routine (e.g., morning routine)
 - Having a job search routine can maximize client's chances of getting a job



Self Management Topics, Examples of Strategies

Attention	Memory	Planning Ahead	Problem Solving	Thinking Speed
<ul style="list-style-type: none">-Paraphrase-Reduce distractors-Rest breaks-AlarmsOrganize work space	<ul style="list-style-type: none">-Repeat back instructions-Memory spots-Memory aidsalarms	<ul style="list-style-type: none">-Scheduler-Personal or work routine-Prioritize tasks with “To do” or checklists	<ul style="list-style-type: none">-Standard solutions-Identify “problem solver”	<ul style="list-style-type: none">-Practice-Routine-Increase efficiency-Teamwork

Summary

- Cognitive skills are important for work
- Self management strategies:
 - improve cognition and work in IPS
 - incorporated into SE services
- Comprehensive curriculum of self management strategies with participant handouts and guidelines for teaching is included in TSW program

Thank You!

Reference List

- Bowie CR, Bell MD, Fiszdon JM, Johannesen JK, Lindenmayer JP, McGurk SR, Medalia AA, Penadés R, Saperstein AM, Twamley EW, Ueland T, Wykes T. Cognitive remediation for schizophrenia: An expert working group white paper on core techniques. *Schizophr Res*. 2020 Jan;215:49-53. doi: 10.1016/j.schres.2019.10.047. Epub 2019 Nov 4.
- Burns AMN, Erickson DH. Adding Cognitive Remediation to Employment Support Services: A Randomized Controlled Trial. *Psychiatr Serv*. 2023 Mar 1;74(3):222-228. doi: 10.1176/appi.ps.202100249. Epub 2022 Sep 6. PMID: 36065580.
- McGurk SR, Mueser KT. Strategies for coping with cognitive impairments of clients in supported employment. *Psychiatr Serv*. 2006 Oct;57(10):1421-9. doi: 10.1176/ps.2006.57.10.1421. PMID: 17035559.
- McGurk, S.R., Mueser, K.T., & Pascaris, A. Cognitive training and supported employment for persons with severe mental illness: One year results from a randomized controlled trial. *Schizophrenia Bulletin*, 31: 898-909, 2005.
- McGurk, S.R., Mueser, K.T., Feldman K., Wolfe, R., & Pascaris, A. Cognitive training for supported employment: 2-3 year outcomes of a randomized trial. *American Journal of Psychiatry*, 164:437-441, 2007.
- Lindenmayer, J.P., McGurk, S.R., Mueser, K.T., Khan, A., Wance, D., Hoffman, L., Wolfe, R., & Xie, H. Cognitive remediation in persistently mentally ill inpatients: A randomized controlled trial. *Psychiatric Services*, 59:241-247, 2008.
- McGurk, S.R., Mueser, K.T., DeRosa, T., & Wolfe, R. Work, recovery, and comorbidity in schizophrenia. *Schizophrenia Bulletin*, 35(2):319-335, 2009.
- McGurk, S.R., Mueser, K.T., Xie, H., Welsh, J., Kaiser, S., Drake, R.E., Becker, D., Bailey, E., Fraser, G., Wolfe, R., & McHugo, G.J. Cognitive Enhancement Treatment for People with Mental Illness Who Do Not Respond to Supported Employment: A Randomized Controlled Trial. *American Journal of Psychiatry*. 172(9):852-61, 2015.
- McGurk, S.R., Mueser, K.T., Xie, H., Feldman, K., Shay, Y., Klein, L., & Wolfe, R. 2016). Cognitive remediation for vocational rehabilitation nonresponders. *Schizophrenia Research*. 175, 48-56, 2016. doi: 10.1016/j.schres.2016.04.045.
- McGurk SR, Twamley EW, Sitzer DI, McHugo GJ, Mueser KT. A meta-analysis of cognitive remediation in schizophrenia. *Am J Psychiatry*. 2007 Dec;164(12):1791-802. doi: 10.1176/appi.ajp.2007.07060906. PMID: 18056233; PMCID: PMC3634703.
- McGurk, SR, Mueser, KT (2021). *Cognitive Remediation for Successful Employment and Psychiatric Recovery: The Thinking Skills for Work Program*. Guilford Publications, London
- McGurk. S.R. Drake, R.E., Xie, H., Riley, J., Milfort, R., Hale, T.W., Frey W. (2018). Cognitive predictors among work in social security disability insurance beneficiaries with psychiatric disorders enrolled in IPS supported employment. *Schizophrenia Bulletin*, 44, 32-37. doi: 10.1093/schbul/sbx115.
- Vita A, Barlati S, Ceraso A, Nibbio G, Ariu C, Deste G, Wykes T. Effectiveness, Core Elements, and Moderators of Response of Cognitive Remediation for Schizophrenia: A Systematic Review and Meta-analysis of Randomized Clinical Trials. *JAMA Psychiatry*. 2021 Aug 1;78(8):848-858. doi: 10.1001/jamapsychiatry.2021.0620. PMID: 33877289; PMCID: PMC8058696.
- Wykes T, Huddy V, Cellard C, McGurk SR, Czobor P. A meta-analysis of cognitive remediation for schizophrenia: methodology and effect sizes. *Am J Psychiatry*. 2011 May;168(5):472-85. doi: 10.1176/appi.ajp.2010.10060855. Epub 2011 Mar 15. PMID: 21406461.