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# **Beyond Treatment As Usual: The Case for Cognitive Remediation and CET in Missouri, a Report From the Field**

## **2017 Missouri Spring Training Institute**

### **June 2, 2017**

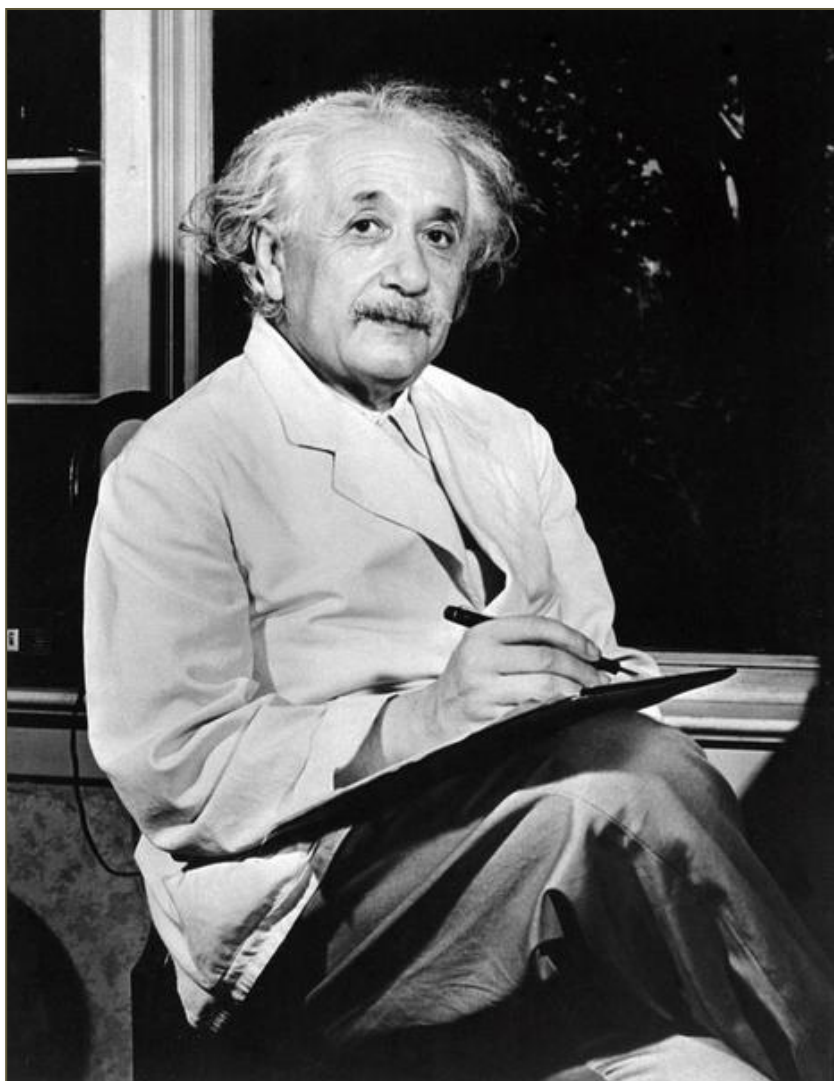
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Center for Cognition and Recovery**

# What do. . .



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# Albert Einstein

2011 SAMHSA Award Recipient



# Steven Levitt

Co-Author of Freakonomics



# Stephen Dubner

Co-Author of Freakonomics

2011 SAMHSA Award Recipient



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# LeBron James

2011 SAMHSA Award Recipient



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## **...HAVE IN COMMON?**

An ability to see, think and act  
outside of the box of normal  
expectations.

“Insanity is doing the same thing over and over again and expecting different results.”

**Einstein**

“Whatever part of the problem you are trying to solve, make sure you’re not just attacking the noisy part of the problem that happens to capture your attention.”

**Levitt and  
Dubner**



# LeBron James

Went from being a great inside threat to being an all around MVP because he focused on his weaknesses, not just on his strengths.

## Active Treatment vs. Maintenance Management

- Do we, as mental health professionals have those abilities, to think outside of the box?
- Or are we too focused on the noisy part of mental illness: the positive symptoms?

## Active Treatment vs. Maintenance Management



- We need to redefine the problem as “Incomplete Recovery” and view it as impaired cognitive and social functioning rather than the noisier, acute psychotic symptoms. Such thinking leads to innovative solutions and not to TAU.

# True or False ?



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- Cognitive problems are due to laziness and lack of effort.
- Cognitive problems will go away when symptoms like hallucinations go away.
- Cognitive problems are caused by medications.
- Cognitive problems are caused by being in the hospital or nursing home or at home too long.

# Why Cognitive Remediation and CET?



- 60 + years of research show that there are major cognitive deficits associated with Schizophrenia, but no active treatments.
- There was, and is a need to rethink the problem.
- While medication is needed for positive symptoms, negative symptoms are what keep individuals from fully recovering: live full lives including learning, loving and working.



# Cognitive Deficits Are Very Common in Schizophrenia



- 84% of persons recovering from Schizophrenia meet the criteria for Clinically Significant impairment of cognition, scoring at least one standard deviation below norms in at least two ability areas. Reichenberg et al, Schizophrenia Bulletin 2009, 35 (5): 1022-29
- Up to 98% perform worse on cognitive test than their premorbid functioning or mother's education level would predict. Keefe et al, Biological Psychiatry, 2005, 57 (6): 688-691

# Similar Cognitive Deficits Found in Schizophrenia, Bipolar Disorder, Chronic Depression and ASD



- Attention/Distractibility
- Processing Speed
- Working Memory
- Executive Functioning

## Results in Social Cognition Deficits

- Problems taking another person's perspective.
- How to function in novel social and vocational situations.

# Old Thinking About the Brain



- The brain does not change.
- Once a brain is damaged, it can not improved.
- We have a fixed number of brain cells and synaptic connections.
- Old dogs and humans can not learn new tricks, but we now know that improved cognition is possible at all ages, a little slower perhaps, but we can learn.







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## New Brain Facts

- The average human brain has about 100 billion **neurons**.
- Each neuron may be connected to up to 10,000 other neurons, passing signals to each other via as many as 1,000 trillion **synaptic connections**.
- Your hippocampus, the part of the brain that's super important for learning and memory, actually does create new brain cells during adulthood—about 1400 neurons per day.



# Cognitive remediation is based on Neuroplasticity



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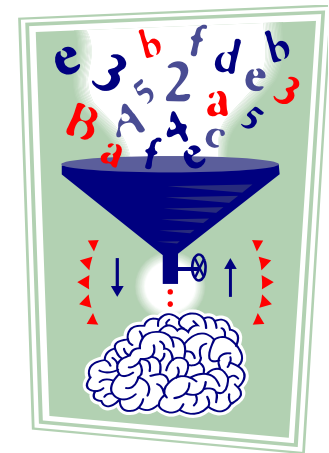


- Neuroplasticity refers to the brain's ability to re-organize itself through forming new neural connections or by adding cells.
- Neuroplasticity allows the neurons in the brain to adjust their activity and organization in response to new situations or to changes in the environment.

# CET is an active treatment that changes our clients' brains:



- To have increased capacity to learn.
- To remember what they learn.
- To act in real time.
- To improve their social cognition.
- To act wisely in novel social and vocational situations.
- To have hope.

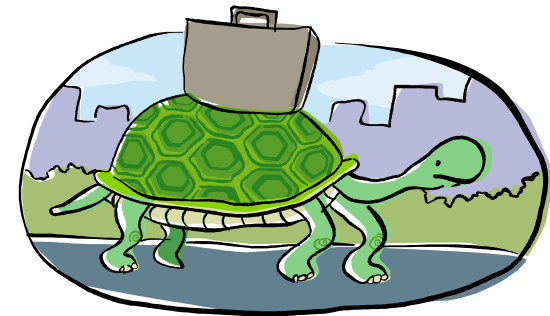


**HOPE VIDEO CLIP**

# CET Focuses on Negative Symptoms Of Schizophrenia



- Flat or blunted emotion
- Lack of motivation or energy
- Often on auto pilot
- Lack of pleasure or interest in things



## **Cognitive difficulties are also usually present:**

- Slow, effortful thinking process
- Concrete thinking
- Poor concentration and memory

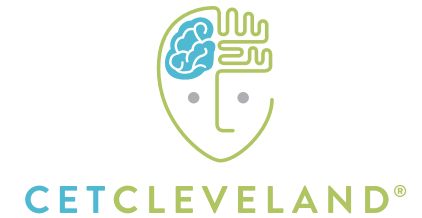
# What is CET?



- CET is an EBP form of cognitive remediation that aims to improve brain functioning.
- For stable clients who have plateaued but have not fully recovered.
- Combination of specialized computer exercises, social cognition groups and individual coaching.
- Utilizes a coaching methodology.
- 48, once-a-week sessions.
- 70 to 90% attendance and graduation rate.



# Plasticity can be a double edged sword



**Adaptive plasticity**



**Maturation,  
Improved function**



**Pathology,  
symptoms**



**Aberrant plasticity**

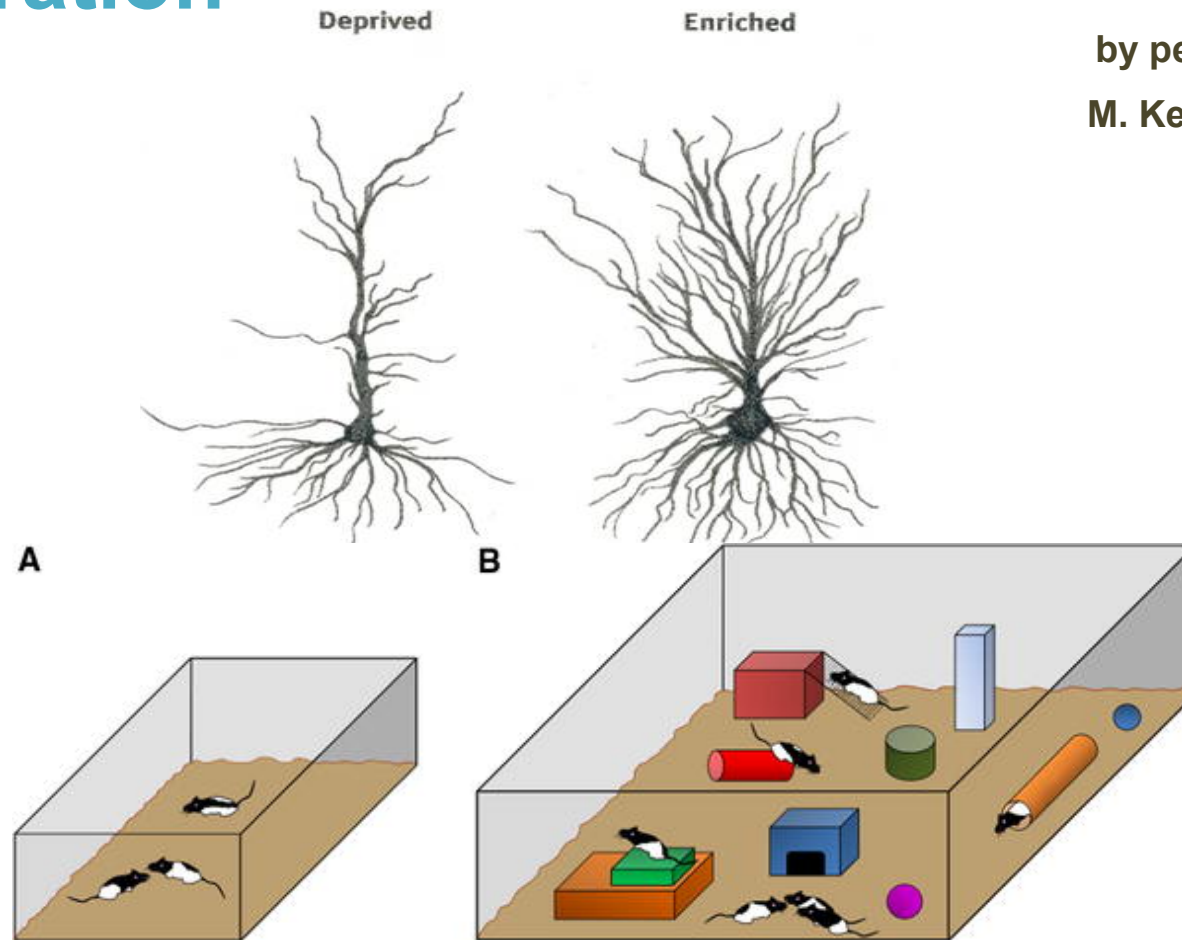
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MD

# Environmental enrichment leads to neuronal proliferation



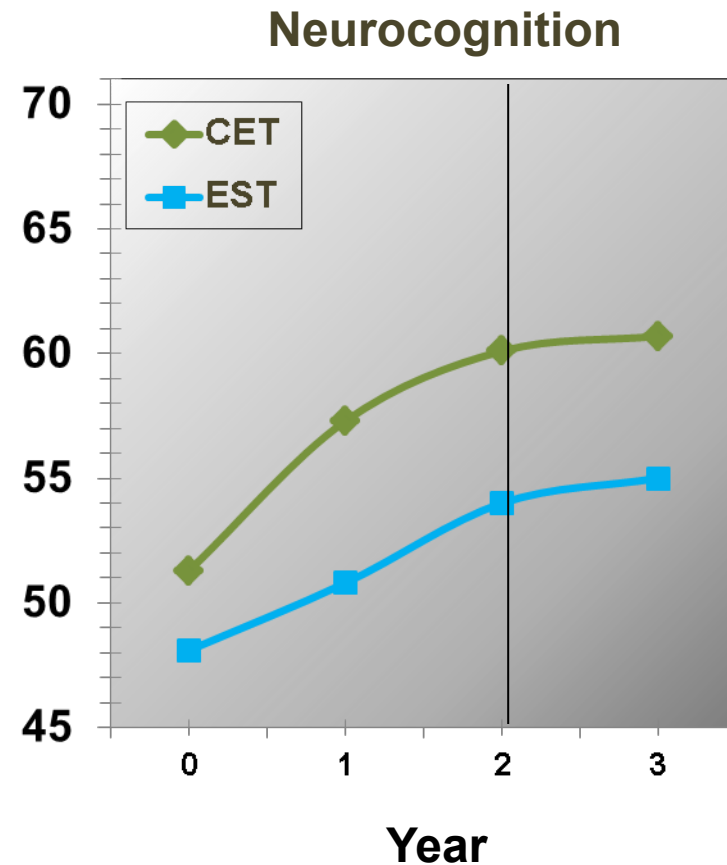
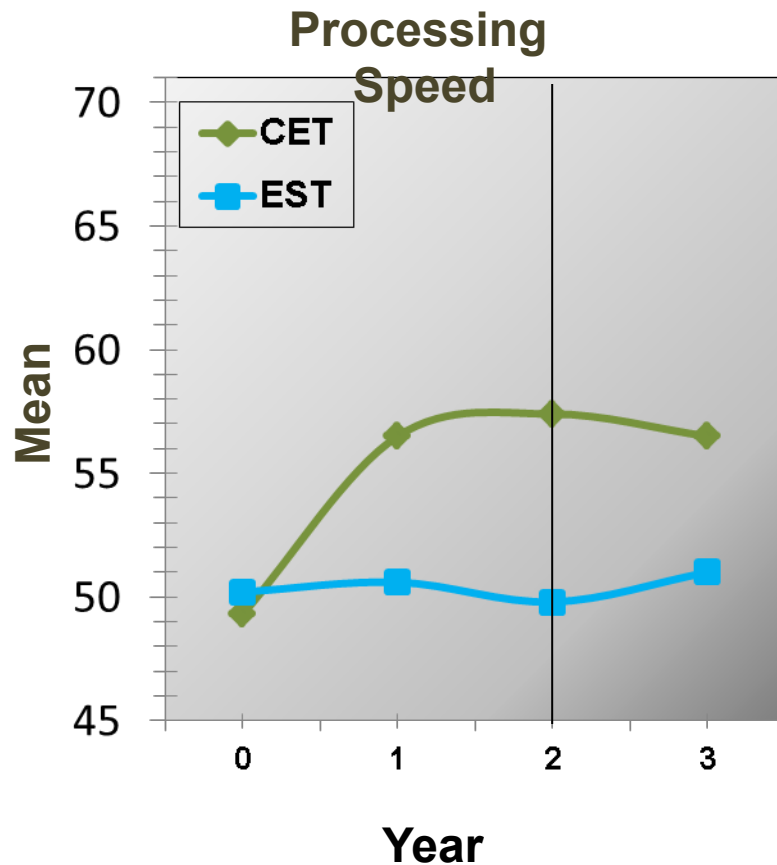
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# CET For Chronic Schizophrenia: Lasting Effects (N = 106)



Hogarty, Greenwald, & Eack, 2006. *Psychiatry Serv.* 57:1751-1757.



# Components of CET



1. Specialized computer exercises done in pairs in a group setting.
2. Homework reporting in social cognition group, no one can hide.
2. Weekly Psycho-Ed talks .
3. Cognitive Group Exercises done in pairs in front of group with diplomatic feedback by group members.
4. Individual “coaching” once a week.

# Attention, Memory, Problem Solving



- Attention

- Establish set
- Maintain set
- Shift set



- Memory

- Recall, recognition, procedural
- *Working Memory* is most impaired in mental illness

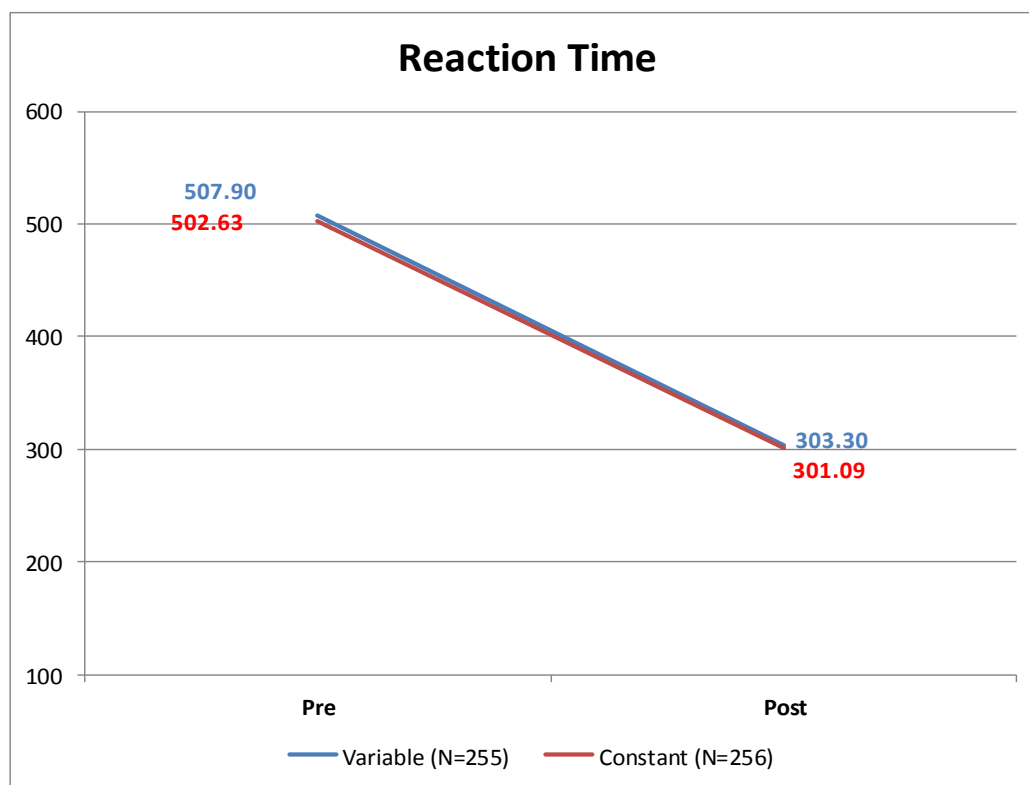
- Problem Solving



# Computer Exercises Work the Brain (and they are fun too!)



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Results: The total mean score of the variable time significantly decreased from the pre to post ( $p < .001$ ; The chance that the result happened by chance is only 1 in a thousand.) 80.8% of the clients decreased their **variable time (N=255)**.

The total mean score of the constant time significantly decreased from the pre to post ( $p < .001$ ). 78.1% of the clients decreased their **constant time (N=256)**. Data as of 3-7-16. The reaction time for the normative (e.g. college students) population is 215.

## Typical CET Day

<b>11:00 – 12:00</b>	<b>Computer Exercises</b>
<b>12:00 – 12:30</b>	<b>Break</b>
<b>12:30 – 2:00</b>	<b>Group</b>

Individual coaching session held with each client during the week to work on homework questions.

## **COGNITIVE ENHANCEMENT THERAPY**

*Tuesday, January 16, 2007*

**Group #9, Session 20**

**Welcome Back:** Judy

**Selection of Chairperson:**

**Review of Homework:**

- a) Describe a recent situation in which you disagreed with another person
- b) Describe your perspective
- c) Describe their perspective

**Psycho-Educational Talk:** Foresightfulness      Speaker: Ray

**Exercise:** Word Sort      Coach: Judy

Participants: Sam and Jo

Feedback: Everyone

**Homework:**

Tell about a time when you could have been more foresightful.  
Tell how being foresightful would have made the situation different.

Next Group Meeting is Tuesday January 23, 2007

# Socialization

- Children are told what to do



- Adults are expected to “get it”

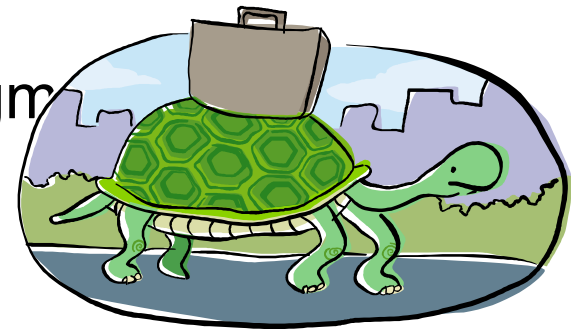


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## But.....

- Suppose your memory is impaired and it's hard to follow a conversation, much less participate in it.
- Suppose your thought processing is slowed down and it takes extra effort to process and respond to what is happening around you.
- Suppose you can't trust your judgment

Then what happens?





# Desocialization

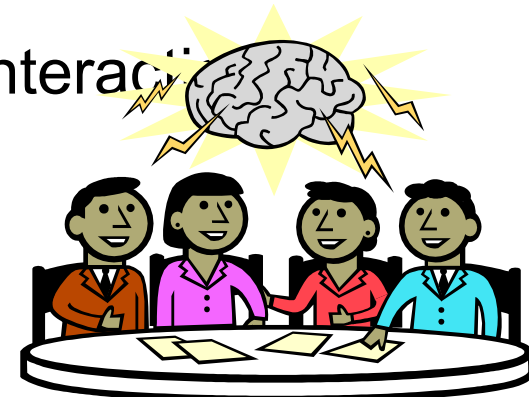
- If adults (your clients) don't "get it" people walk away.
- When people walk away:
  - Socialization stops
  - Learning stops
  - Strange behaviors grows
  - People become desocialized



# Desocialization



- Dysfunctional roles are established.
- Others begin to reinforce dysfunctional roles.
- Dysfunctional behavior becomes familiar, if not always comfortable.
- No learning about the generalized other.
- The best mental exercise is social interaction.





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# MOTIVATIONAL ACCOUNT

## A Motivational Account means

- Explaining your actions and your ideas

## Tips for giving good Motivational Accounts

- Stop and think
- Tailor your explanation to your audience
- Can you explain yourself?
- What is the context?

Your perspective + Perspective of your audience = Good Motivational Account

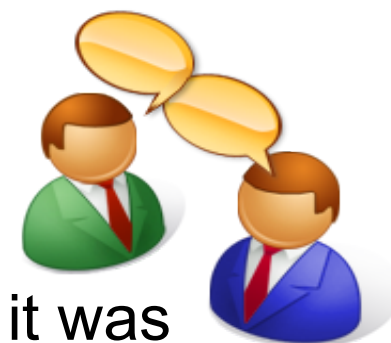


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P25

(Rev. 1/15)

# Homework on Motivational Account



- Give an example of the situation in which it was important to give a motivational account.
- Tell us why it was important to give a Motivational Account.
- How could you have given a better Motivational Account?



## "White Bread"

25 Words

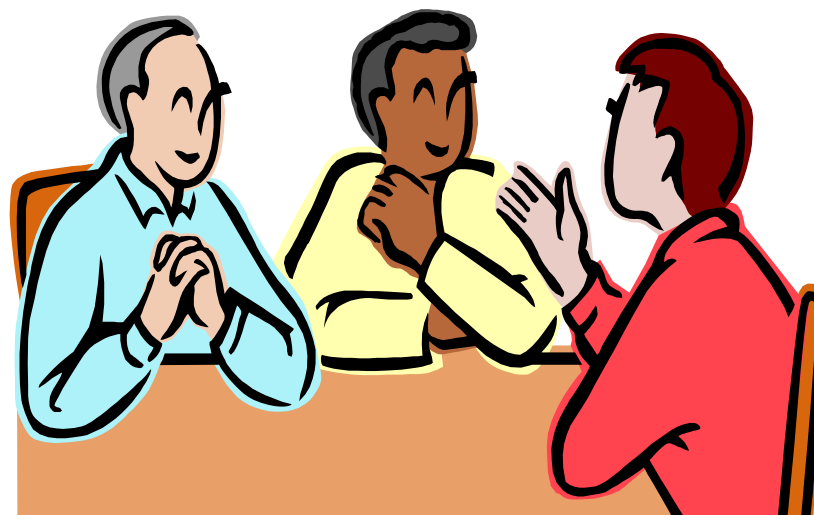
Sort into five categories (five words each) and then again into another five categories.

The word search puzzle contains the following words:

- motor
- Francine
- Tom
- Wednesday
- Tracy
- Wendy
- salsa
- Monday
- Martha
- windshield
- Fred
- Mark
- front end
- Thursday
- Wally
- Sam
- white bread
- Sue
- milk
- Kapuns
- fish
- spark plug
- tomato
- Friday
- tire

# Accurate and Diplomatic Feedback

- Intellectual
- Emotional
- Teamwork
- Response to Coach



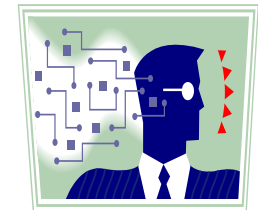
# Impact of Impaired Cognitive Functioning on Physical Health



- Reduced awareness of own physical health.
- Difficulty in communicating with others, especially primary health care providers.
- Poor memory results in poor follow through on medical treatment, e.g. medication compliance, M.D. appointments, diet, etc.
- Few social supports and lack of self initiation.

## Ways CET benefits clients

- Attention
- Memory
- Motivation
- Affect
- Awareness of Social Context
- Vocational Effectiveness
- Interpersonal Effectiveness
- Active Thinking
- Awareness of Illness/ Disability
- Dependability
- Spontaneity
- Foresightfulness
- Perspective Taking
- Cognitive Flexibility
- Mental Stamina





# Effects of CET on Employment Outcomes in Early Schizophrenia; Eack, et al



Variable	CET (N = 24)		EST (N = 22)	
	N	%	N	%
Competitively employed	13	54	4	18
Job status				
Full time	6	25	3	14
Part time	7	29	1	5
Employment pattern				
Achieved employment	10	42	2	9
Maintained employment	3	12	2	9
Lost employment	0	0	6	27
Job category <sup>a</sup>				
Professional	1	5	0	0
Clerical/sales	5	23	1	5
Skilled manual labor	1	5	0	0
Unskilled labor	4	18	3	14
	M	SD	M	SD
Weekly earnings	207.92	337.97	69.77	156.47
Satisfaction with employment status <sup>b</sup>	2.46	1.56	3.77	1.69

VOCATIONAL VIDEO CLIP

# Reduces need for urgent, high demand services

## InterAct Michigan, Kalamazoo MI

–156 hospital bed days for the 17 CET Graduates , the year prior to CET (7 clients)

–10 bed days for the CET treatment year (1 client)

- **146 less bed days, a 93.5% reduction**
- The average national cost of a psychiatric bed day is \$1565 (as reported by Liz Szabo’s article in USA TODAY, 5/12/14 “*Cost of not caring: Nowhere to go. The financial and human toll for neglecting the mentally ill.*” )
- **Using that average national cost, those 146 less bed days would equal \$228,490 in reduced costs (146 days X \$1,565 cost per bed day).**

–13 months post CET graduation

- 20 bed days (2 clients, data as of 1/1/15)
- **Sustained 87% reduction in bed days**



# IMPACT OF CETCLEVELAND®

How CETCLEVELAND® had an impact on the recovery of CETCLEVELAND® Graduates at Truman Medical Center

How CETCLEVELAND® had an impact on the professional work of CETCLEVELAND® Coaches at Truman Medical Center

# CETCLEVELAND® trained staff at the following agencies:



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Center for Cognition & Recovery, Cleveland, OH

Mercy Behavioral Health, Pittsburgh, PA

Community Support Services, Akron, OH

Jewish Family Service Association (JFSA)

Beachwood, OH

PLAN of Southwest Ohio, Cincinnati, OH

Northcoast Behavioral Healthcare, Northfield,

OH (ODMHAS)

Chestnut Ridge Hospital, Morgantown, WV

JEVS, Philadelphia, PA

City Mission of Washington, PA

Bridgehaven MHS, Louisville, KY

Arcadia & South Bay LACDMH, Los Angeles, CA

Tri City MHS, Pomona, CA

InterAct Michigan, Kalamazoo, MI

Spindletop Center, Beaumont, TX

Lake Shore BHS, Buffalo, NY

Didi Hirsch, Los Angeles, CA

Veterans Affairs, Cleveland, OH

Lakes Regional Center, Terrill, TX

The Mental Health Coop, Houston, TX

Gulf Coast Center, Galveston, TX

Harbor CMHC, Toledo, OH

Unison Behavioral Health, Toledo, OH

Zepf Center, Toledo, OH

A Renewed Mind, Toledo, OH

Easter Seals of MI, Auburn Hills, MI

Region Ten CSB, Charlottesville, VA

Beech Brook, Pepper Pike, OH

Coleman Professional Services, Lima, OH

# CETCLEVELAND® STATISTICS



1. 265 CET groups completed as of September 2016 with 2,155 CET Graduates
2. 49 CET groups currently running
3. Current Disseminations: Prince William County CSB in Manassas, VA 7/15; New Mexico, Division of BHS, 4 sites 7/15; Jefferson CMH, West Ridge CO 9/15; Truman Medical Center, Kansas City, MO 12/15; Mental Health Partners, Boulder, CO 1/16; Southeast Inc., Columbus, OH 5/16; Central Michigan CMH, Midland and Mt. Pleasant MI; CNS, Farmington Hills MI; Easter Seals, Pontiac, MI, 6/16; Training & Treatment Innovations, Oxford, MI 10/16
4. 12 new CET sites in development in IN, KY, MA, MI, NC, NJ, NY, OH, OR, WI



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Science and Service Award  
Treatment of Mental Illness and Recovery Support  
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