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## TBI MASTER COURSE #3

# Traumatic Brain Injury: Outpatient and Return to Work – Case Study Applications

Janice Osborne-Dowdy, MS, CCC/SLP, CBIS

Speech-Language Pathologist

NeuroRestorative. Ashland, KY

Steven Wheeler, PhD, OTR/L, FAOTA, CBIS

Professor, Occupational Therapy

West Virginia University

# Janice Dowdy, MS, CCC-SLP, CBIS

Janice Osborne Dowdy, MS/CCC-SLP, CBIS, is the lead speech-language pathologist at NeuroRestorative Ashland, Kentucky. Janice is a Certified Brain Injury Specialist, through the Academy of Certified Brain Injury Specialists. She is a graduate of Eastern Kentucky University and East Tennessee State University. Janice has been a practicing SLP for 19 years treating individuals with cognitive/communication/swallowing deficits as the result of CVA, brain injury, head and neck cancer, progressive neurological diseases, as well as other disease processes. She has worked in acute care, long term acute care, skilled nursing, and acute rehabilitation in inpatient, outpatient, and day treatment programs both as a staff therapist, and in various management roles prior to coming to NeuroRestorative. Janice also worked for Chattanooga Group/EMPI as Clinical Specialist for Vital Stim Therapy, traveling the USA providing education and consulting services to physicians and therapists in the management and treatment of dysphagia utilizing the modality of neuromuscular electrical stimulation (NMES). Janice has worked in the Ashland program since 2013.



# Steven Wheeler, PhD, OTR/L, CBIS

Dr. Steven Wheeler is a professor and occupational therapy division chairperson at the West Virginia University School of Medicine. Prior to this, he served in a similar role at the University of Cincinnati. Dr. Wheeler is also principal investigator on the West Virginia TBI State Project which seeks to monitor, expand, and improve the lives of TBI survivors and caregivers through education, advocacy, and community outreach. Dr. Wheeler received his PhD in Health-Related Sciences with a Specialization in Occupational Therapy from Virginia Commonwealth University. He has conducted TBI related presentations nationally and internationally over the past 20 years and has numerous publications on the topic including co-authoring the American Occupational Therapy Association's "Occupational Therapy Practice Guidelines for Adults with Traumatic Brain Injury."



- Presenter Disclosure: Financial: Steven Wheeler and Janice Dowdy have received an honorarium for presenting this course. Non-financial: Steven Wheeler and Janice Dowdy have no relevant non-financial relationships to disclose.
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# Learning Outcomes

After this course, participants will be able to:

1. Recognize common cognitive and perceptual impairments associated with traumatic brain injury.
2. Recognize the impact of cognitive and perceptual deficits on the performance of daily activities.
3. Identify approaches to assessment and intervention in the outpatient and community-based setting.

# The Challenge of TBI Rehabilitation

Getting from here .....



To here .....



## The Complexity of TBI and Human Performance

- Effective TBI intervention is a combination of:
  - Understanding TBI
  - Understanding your patient/client
  - Understanding activity and activity analysis
- When an individual's needs are considered in the context of instructions or expectations, the learning/rehabilitation process is accelerated.

(Winstein & Kay, 2015)

## Case Background - Drew



- Step 1:

Accurate assessment of impairments  
is critical to successful neurological  
rehabilitation

But first ...

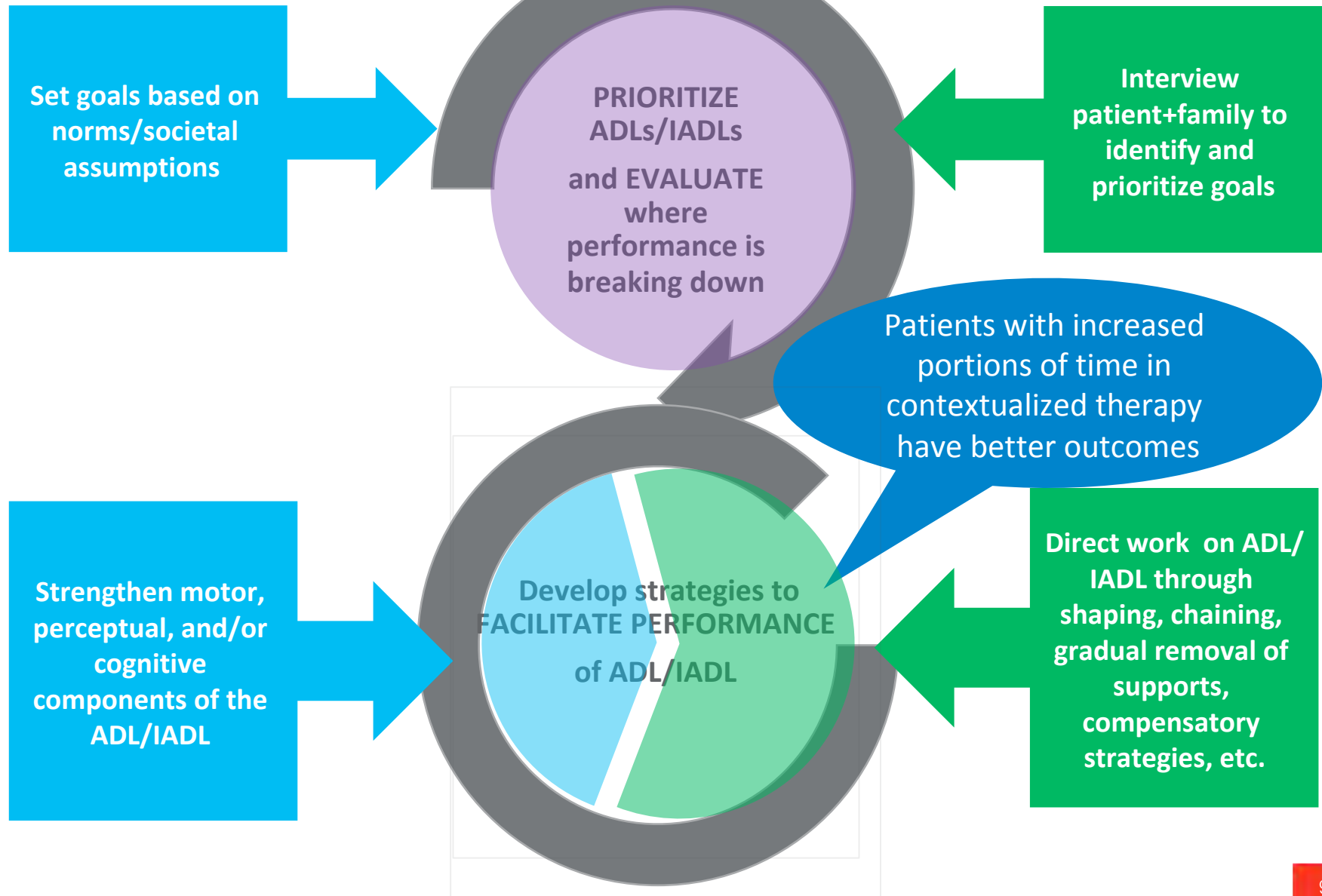
## Assessment Foundations – Taking a “Top Down” Approach

- Client Centeredness
- Rapport Building
- Establishing the Basis for Contextualized Rehabilitation



Decontextualized Approach

Contextualized Approach



## Findings Regarding Contextualized Treatment (Bogner et al., 2019)

- Increasing the proportion of treatment using a contextualized approach results in better community participation one year later
  - Patients with a 30% greater proportion of contextualized treatment were more likely to be out of the house 1-2 more days a week one year later.
- Patients with greater disability experienced more benefit in regard to self-care and mobility than patients with less severe disability
- The findings do not indicate that decontextualized should not be used, but to use contextualized treatment whenever possible given the therapy goal.

## Assessment of Performance – Where do I Start?

- By knowing where your patient and family wants to go, you can evaluate to determine the discrepancy between now and your target goal
- Standardized assessments and observation of task participation can both be beneficial.



Goals:    A. Work    B. School    C. Relationship

## Recovery from TBI: Considerations in Work and School Capacity

Cognition / Perception	Physical / Motor	Behavioral / Emotional
Orientation Attention and Concentration Memory Problem solving Flexible thinking Initiation Disinhibition Self-awareness Goal-setting	Balance Fine and gross motor skills Spasticity Ataxia Pain / Headache Endurance Sensory changes Speech Swallowing Seizure disorder Sleep disturbance	Impulsivity Apathy Depression Anxiety Personality changes Emotional lability Flat affect Social skills Mood swings Aggression

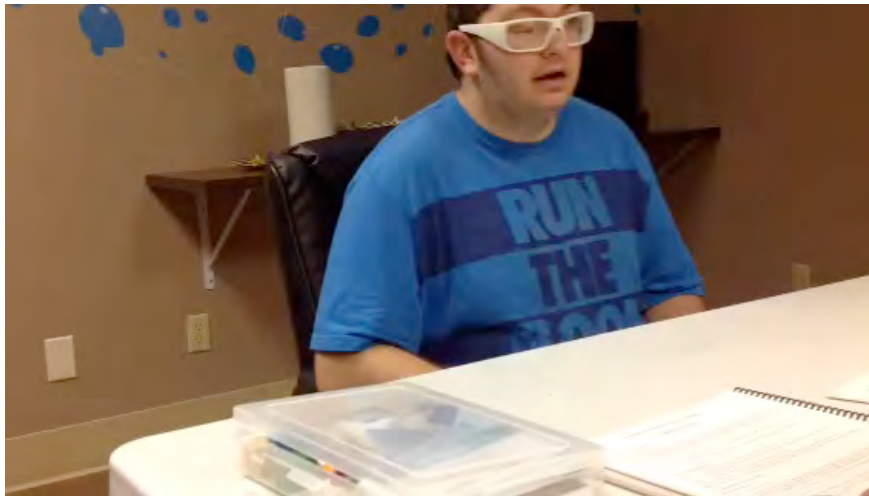
## About TBI: Common Problems Processing and Understanding Information

- Taking a longer time to grasp what others are saying
- Taking more time to understand and follow directions
- Have trouble following the plot of television shows or movies
- Taking longer to read and understand information such as a newspaper or book
- Slower to complete even routine tasks such as getting dressed or cooking a meal

## About TBI: Common Problems Learning and Remembering New Information

- Related to memory deficits
- Difficulty with learning new routines and systems
- May remember some parts of events or conversations, but may appear to confabulate parts to “fill in the gap”

# Establishing Competencies in Relation to Goals



- A. Cognition
- B. Self-Awareness
- C. Perception
- D. Communication

Dynamic Lowenstein Occupational  
Therapy Cognitive Assessment

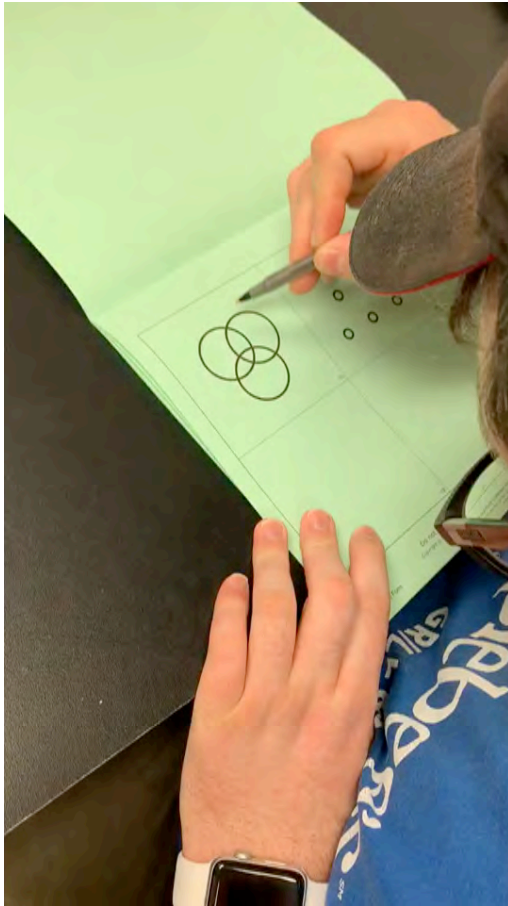
# Establishing Baselines Relative to Goals



How would  
we describe  
performance?

Dynamic Lowenstein Occupational Therapy  
Cognitive Assessment

# Establishing Baselines Relative to Goals



Beery Test of Visual-Motor Integration (VMI)



Reading, writing, keyboard skills

# Process of Storing Memory

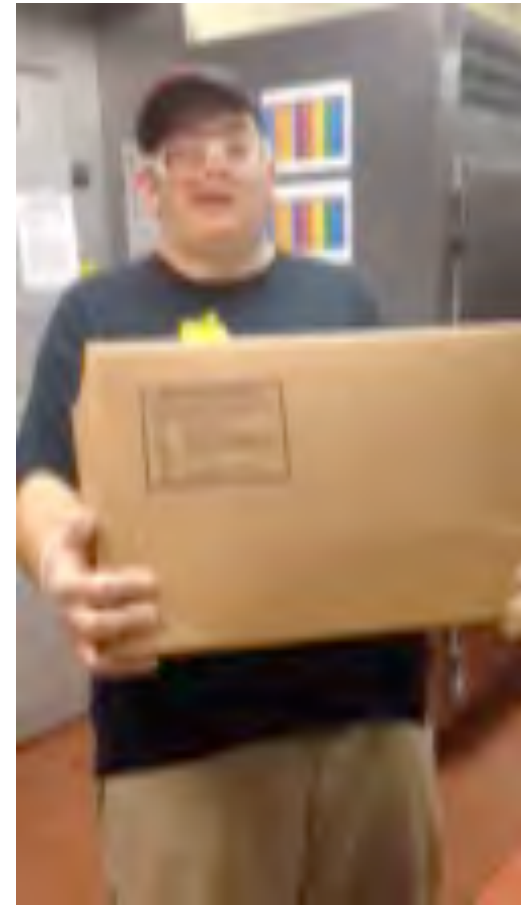
- Attention
- Encoding Information
  - Being able to “understand” the information
- Storage
  - Moving information to a specific area of the brain
- Retrieval
  - Searching the “files” and pulling out a memory

# Establishing Physical Capacity Related to Work and School

- Baseline Assessment
  - Lifting
    - Floor-knuckle
    - Knuckle to shoulder
    - Shoulder to overhead
  - Carrying
  - Fine Motor
  - Endurance / Positional Tolerances
  - Pain



# Return to Work Progression



# Return to Work Progression

- Work capacity assessment
- Clinic based simulated work activities
- Remediation / compensation of impairments
- Volunteer activities
- Paid work

\*\*\* Requires establishing partnerships / advocacy

# Making a Difference in the Clinic and Community

- By understanding the challenges experienced during recovery, therapists can make a big difference in the lives of clients and families
- Increasing participation in meaningful roles and pleasant activity (Bombardier, et al., 2017) and aerobic exercise (Weinstein et al., 2017) positively impacts mood



# Important Considerations: Language and Communication Problems Post TBI

- Difficulty thinking of the correct word
- Trouble starting, following, understanding conversation
- Difficulty staying on topic
- Difficulty expressing thoughts in an organized manner
- Difficulty communicating thoughts and feelings using facial expressions and tone of voice
- Having trouble reading others thoughts and feelings
- Misunderstanding jokes and sarcasm – being very “black and white”

## Important Considerations: Planning and Organization Problems after TBI

- Difficulty planning schedules and following them
- Trouble with things requiring multiple steps from simple to complex tasks
- May lose or misplace items frequently, blame others for moving items or taking from them

# Important Considerations: Problems with Reasoning, Problem Solving, and Judgment

- Difficulty realizing there is even a problem to start with...
  - Rigid thinking – trouble analyzing options and solutions or changing the way they think
  - Quick judgments
  - Acting without thinking about the consequences

## Important Considerations: Inappropriate, Embarrassing, or Impulsive Behavior

- Denying cognitive problems
- Saying hurtful or insensitive things
- Cursing or acting “out of character” compared to pre-injury self
- Lacking awareness of social boundaries
  - Sexually inappropriate
  - Invading personal space
  - Oversharing information with “strangers”

So can we “fix” any of these problems, and if so, how????

# Remediation Vs. Compensation

- Two approaches
  - Fixing the problem – Remediation
  - Coming up with ways to do the things you need to do, in a new way – Compensation
- Most progress and increase in skills can be seen from combination of the 2 approaches.

# Principles of Neuroplasticity

- **Neuroplasticity:** The brain's ability to reorganize itself by forming new neural connections throughout life. Neuroplasticity allows the neurons (nerve cells) in the brain to compensate for injury and disease and to adjust their activities in response to new situations or to changes in their environment.

# Principles of Neuroplasticity

- Use it or lose it
  - Not using functions of your brain can lead to no longer being able to use them
- Use it and improve it
  - Training a specific brain function can lead to an improvement in that function
- Specificity
  - The nature of the training dictates the nature of the plasticity
- Repetition Matters
  - Induction of plasticity requires sufficient repetition

(Kleim & Jones, 2008)

# Principles of Neuroplasticity

- Intensity matters
  - Induction of plasticity requires sufficient training intensity
- Time matters
  - Different forms of plasticity occur at different times during the training
- Salience matters
  - The training experience must be sufficiently salient to induce plasticity
- Age matters
  - Training induced plasticity occurs more readily in young brains

(Kleim & Jones, 2008)

# Principles of Neuroplasticity

- Transference
  - Plasticity in response to one's training experience can enhance the acquisition of similar behaviors
  
- Interference
  - Plasticity in response to one experience can interfere with the acquisition of other behaviors.

(Kleim & Jones, 2008)

# Treatment

- Individualize the educational information provided about the client's specific memory and cognitive difficulties
- Involve the client in setting specific goals and selecting memory aids
- Create opportunities for accurate self-monitoring
  - Providing a delay between a prediction for a memory task, allows cueing for memory aid, thus giving self-monitoring and self-control an explicit connection

# Engaging the Client

Worksheet Form: Goal-Plan-Do-Review Model

**GOAL:**  
What do I want to accomplish? "to be independent at work".

**PLAN:**  
How am I going to accomplish my goal?

MATERIALS/EQUIPMENT	STEPS/ASSIGNMENTS
1 sequencing	1 checklist; steps for each task
2 following directions	2 double check; use breaks; check off items; use visual scanning techniques.
3 attention	3 take breaks
4 frustration tolerance	4 1 and 3 same
5 organization	5 music, quiet area, meditation - pause, ask questions, positive self talk

**PREDICTION:**  
How well will I do? How much will I get done?  
"pristine"; "supposedly all of it"

**DO:**  
What problems did I find? What solutions?

1.	1.
2.	2.
3.	3.

**REVIEW:**  
How did I do?

SELF-RATING
1 2 3 4 5 6 7 8 9 10

OTHER RATING
1 2 3 4 5 6 7 8 9 10

**WHAT WORKED?**

1.
2.
3.

**WHAT DIDN'T WORK?**

1.
2.
3.

**WHAT WILL I TRY DIFFERENTLY NEXT TIME?**

(Reproduced from Yonker and Farnes, 1996, by permission)

# Treatment

- Anosagnosia
  - Lack of awareness into deficits
- Anosagnosia is one of the biggest challenges in success with individuals with a TBI
  - Provide “safe” opportunities for failure
    - Example would be allowing the person to make a meal “their way” and it not turn out – burnt toast, runny brownies, yucky coffee
  - Breakdown and discuss task failures immediately after they occur – provide specific feedback.

# Treatment Approaches

- Drill and Practice
- Dual Task Training
- Errorless learning
- Role playing
- Situational coaching

# Case Example - Drill and Practice



# Case Example – Social Discourse with Feedback



# Life Skills Training / Coaching

- Teaching in specific life / job skills can facilitate community reintegration and provide valuable feedback to promote self-awareness
- Peer mentoring models have also been found to be effective



(Hanks, Rapport, Wertheimer, & Koviak, 2012; Wheeler, Lane, & McMahon, 2007)

# Compensatory Training – Examples

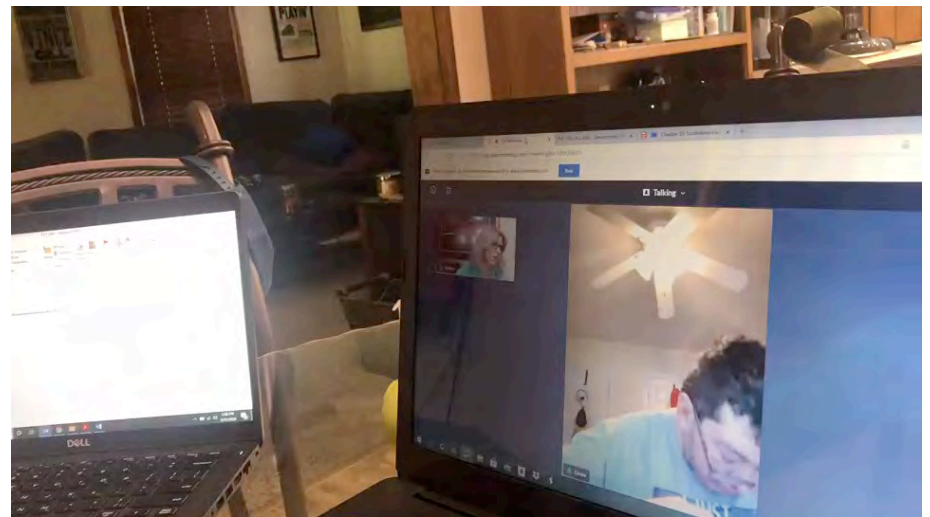
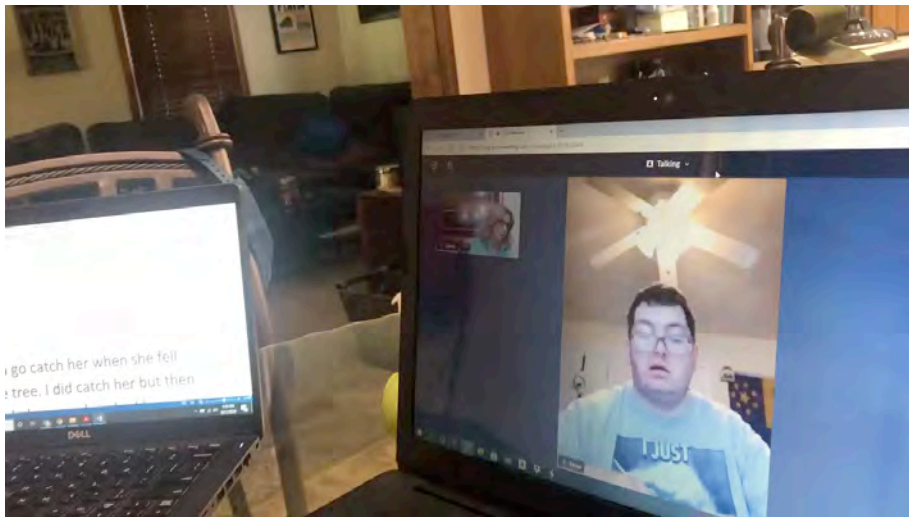
- Internal Memory Aids
  - Visual imagery
  - Category grouping
  - Mnemonics
  - Rehearsal strategies
- External Memory Aids
  - Written planning systems (calendar, notebook, planner appointment book)
  - Electronic planners (PDA, Blackberry, notepad on cellphone)
  - Computer based planning (Outlook, Google calendar) that links between devices

(O'Neill-Pirozzi, Kennedy, & Sohlberg, 2016)

# Compensation



# Case Example – Compensation



# Compensatory Training

- External Memory Aids
  - Items that can be task specific
    - Lists to check off and complete ADLS – showering, doing laundry, grocery list
    - Post It notes (can easily get overwhelming without a “system”)
    - Pill organizer
    - Key finder
    - Dry erase board/bulletin board
    - Television Assisted Prompting (TAP)
    - NeuroPage system

# Compensatory Training

- Establishing both internal and external SUCCESSFUL memory aids requires them to be individualized to the client and re-evaluated as needed to modify and advance the complexity
  - Start at level of establishing orientation
  - Advance to higher level tasks – cautious to establish success at each level

## General Recommendations for Individuals with TBI and Caregivers

- Minimize distractions – work in a quiet room
- Focus on one activity at a time
- Take a break when you feel tired
- Allow extra time to complete tasks
- Re-read and discuss new information, try to put it in “your own words”
- Try not to talk down to the person having difficulties, use a calm voice, and kind words
- Do not speak too fast or say too much at once

## General Recommendations for Individuals with TBI and Caregivers

- Put together a structured routine of daily tasks and activities – and follow it – as close as possible, including sticking to planned times to eat, practice for therapy, complete basic ADLs, wake up, and go to bed.
- Set specific locations for keeping things – a place for medication box, a hook to keep keys by door, table for purse/memory book/ items you need to take to therapy or work, keep a notebook next to the telephone for messages/details of conversation

## General Recommendations for Individuals with TBI and Caregivers

- Schedule out the whole month – Examples:
  - Grocery on Tuesday
  - Pay bills on 15<sup>th</sup> and 30<sup>th</sup>
  - Dry cleaners every other Monday
  - Therapy M/W/F
- Use direct deposit and automatic bill pay for as many items as possible
- Use apps such as GoodBudget to keep track of expenses

# General Recommendations for Individuals with TBI and Caregivers

- Social Situations
  - Think ahead about situations which might result in poor judgment
  - As a caregiver, give supportive and realistic feedback when you observe the inappropriate behavior
  - Provide clear expectations before you get there
  - Plan and rehears social interactions so they will be predictable and consistent.
  - Establish a verbal and non-verbal cueing system

# Conclusions

- A client / patient centered approach is central to addressing the individualized and complex nature of TBI
- Top down assessment facilitates therapeutic relationship building and a contextualized treatment approach
- Several remedial and compensatory intervention approaches exist to facilitate progression towards established goals.

Thank You



## Questions?

- Steven Wheeler, PhD, OTR/L, FAOTA, CBIS
- [swheeler@hsc.wvu.edu](mailto:swheeler@hsc.wvu.edu)
  
- Janice Osborne-Dowdy, MS, CCC/SLP, CBIS
- [Janice.Dowdy@neurorestorative.com](mailto:Janice.Dowdy@neurorestorative.com)

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