Outsmarting Cognitive Challenges With Assistive Technology

“From Soup to Nuts”

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Denver, Colorado
Moeller
- Employment Goals and what it feels like to live and work with cognitive disabilities
  - Role of the Assistive Technology Professional
    - Creating a New Paradigm

Newman
- Role of Cognitive Rehabilitation
  - Low- and high-tech examples
    - Team Approach

Price
- Evernote example

Bennett
- Role of the Vocational Rehabilitation agency

Audience Q & A
How Assistive Technology Professionals can lead the way
“What was the question? I forgot”

Pam Peterson

Pam Peterson is nationally known for her YouTube hit “Memory”, an original musical spoof that went viral in 2011 and gained over 4.5 million views. An award-winning cabaret artist, actress and big band vocalist, Pam has wowed audiences in musical shows across the US.
AT Solutions Worksheet

How long was the video?
How many issues or challenges were depicted?

How many challenges does a typical person with cognitive challenges deal with during a 24-hour day?
How many in a typical 8-hour work day?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Challenge / Issue</th>
<th>AT Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ah (with pleasure) I recognize that song, I remember it</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I think...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>This goes out to anyone who can relate to the “occasional senior moment”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I woke up at midnight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>... and remember that I left the door open</td>
<td></td>
<td></td>
</tr>
<tr>
<td>... with the groceries outside</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Where the hell did I put my keys?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oh look... there they are</td>
<td></td>
<td></td>
</tr>
<tr>
<td>... underneath the TV Guide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Memory...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>What became of the short-term?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I remember the old days</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I was sharper back then</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If I eat fish</td>
<td></td>
<td></td>
</tr>
<tr>
<td>... and do the crosswords every day...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Will the brain cells grow again?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
What the world can feel like when your brain works differently
Show of Hands
What is your relationship to cognitive disability?

- Rehabilitation Clinician (OT, SLP, Psychologist, etc.)
- Assistive Technology Professional (ATP)
- Vocational Rehabilitation Counselor (VRC)
- Compensatory Skills Trainer
- Teacher
- Researcher
- Software Engineer or Application Developer
- Individual with one or more cognitive disabilities
- Family member of someone who has cognitive disability
- Other
A New Paradigm is on the horizon

Dark Ages no more...

When faced with the challenging cognitive inconveniences brain injury presents, regaining function is no longer a mystery...

It’s time to celebrate the fact that we’ve started to crack the code... it’s all about closing gaps in the Cognitive Loop with smart prosthetic cognition

Kathy Moeller
Spring 1998
Cultural Movement Embracing Neuro-diversity


Using Technology To Mitigate Cognitive Disabilities

A 2013 ruling by the Department of Labor established a baseline for federal contractors to have 7% of their workforce be individuals with disabilities. Additionally, passage by the U.S. House and Senate of the Workforce Innovation and Opportunity Act (WIOA) demonstrates a growing emphasis on hiring more individuals with disabilities. However, for this trend to be successful for businesses, they may improve their recruitment and retention of these individuals.

Within the disabled community, one of the largest sectors is made up of individuals with a cognitive challenge of some type. Although people may think that a cognitive disability indicates an inability to perform everyday work, most cognitive disabilities are related to processing issues such as difficulty tracking rapid speech or cognitive fatigue.

With a generation of students educated under the Americans with Disabilities Act (ADA), an aging workforce, and improved medical care that allows individuals with disabilities to return to work, cognitive disabilities are likely to increase in the workplace. In fact, these challenges are, at some point, experienced by the entire workforce (including older workers), and can play a major role in productivity and successful team interactions. It's estimated that, if any given time, 25% of the workforce may be experiencing some type of cognitive issues. Furthermore, most cognitive disabilities are "invisible," which might result in individuals being misclassified and underestimated. For a large company, this result is high turnover and lack of engagement. This good news is that technology augmenting cognitive processing disabilities is rapidly entering the market.

A typical editing environment can be overwhelming for people with cognitive disabilities. (Photo credit: Wikipedia / Public Domain)

To better understand these issues, we spoke with Madeleine Sayso, president and co-founder of Cognitive Computer, an organization that advises businesses on approaches and resources to accommodate employees with cognitive disabilities. According to Sayso, The cognitive technology is expected become a $5 billion market in the near future — able to serve not only those with cognitive challenges but to support all employees in a range of executive function tasks. For example, many popular personal productivity tools (such as Evernote, Apple Notes, and Google Calendar) have been repositioned to assist those with cognitive challenges. It’s likely that this trend will also move the other way, with tools initially developed for individuals with cognitive disabilities becoming popular with the general public.

Sayso highlighted four interesting products that are specifically geared for the disabled but have the potential for broad appeal:

1) My BrainStrain™ (by Cognitive Computer) is an app-based and personal cerebellum optimization tool designed to meet the needs of individuals with cognitive disabilities. The product enables optimal organization and productivity at home and work by teaching skills that compensate for short-term memory impairment, distraction, loss of emotional control, and difficulty with motivation and time management.

2) PEAT™ (by BrainAble) is a virtual executive assistant for use by people with a wide range of cognitive impairments including brain injury, ADHD, stroke, and dyslexia. PEAT is an Android app based on artificial intelligence methods developed at NASA's Ames Research Center to help individuals achieve greater functionality.

3) iBlink™ is another smartphone app that helps individuals with cognitive disabilities to identify triggers or social situations that might cause them to become overwhelmed. It is like an alarm bell that rings when the user experiences such triggers.

4) Livestream™ is a real-time, brain-based monitoring device with a pen that records everything you hear and see. The pen includes a built-in camera that follows your eye movements as you read or write. When you look at something, the pen senses the eye movement andstäps you to stop. If you start to read or write something, it stops you from reading or writing.

"These augmentative technologies represent the cutting edge for improving business functions, and they're just a small sample of technologies that are coming to market," says Sayso. Hopefully, that trend will continue, allowing more people with disabilities to achieve their full potential.

Rob Krecserba is the CEO of Tech Venture. Follow him on Twitter (@RobKrecserba) and LinkedIn.

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The Paradigm Shift

Deficit-focused Medical Model

Rehabilitation Practitioner starts with the neuropsychological assessment

Working from a list of cognitive deficits, report recommends a list of possible, discrete “fixes” and lifestyle adjustments

Medical Model’s Assumptions:
● Deficits need “fixing” and many are not fixable
● Exercise Model (e.g. attention training, memory exercises)

Typical Recommendations:
- Remove environmental stressors in the absence of AT
- Remove academic or vocational stressors
- Recommend adjustment counseling (adjust to losses by lowering expectations and modify goals)
- Present deficit-specific strategies
- Teaching approaches with recommendations may or may not be addressed
- Presentation of strategies may or may not be practical, transferrable or sustainable
- After one to fives years, “what you see is what you get”

Person-centered Holistic Approach

ATP starts with interview and discussion with the end-user about personal and professional goals and dreams

Working from the individual’s articulated goals and dreams, report recommends cohesive, comprehensive AT solution

Holistic Model’s Assumptions:
● AT can restore function to in the face of the “unfixable”
● Compensatory / Cognitive Wheelchair Model

Person-centered Recommendations:
- Modify environmental stressors to support AT
- Advocate for academic and vocational accommodations that support the use of AT
- Recommend adjustment counseling to support adjusting to using AT to reach goals
- Teach strength-based compensatory tactics using AT
- Recommend teaching methods based upon massed practice, visual cues, errorless learning
- Effective use of AT is transferrable and sustainable
- With AT and support, what you “get” can be the dream

Assistive Technology for Cognition can often “fix the unfixable” and should be at the TOP OF THE LIST
Doreen Newman’s Relationship to Cognitive Disability

Dodie (Doreen) Newman, MA, CCC
Speech Language Pathologist

- 30 years’ experience treating individuals with brain injury and other cognitive disabilities

- Focus of practice is on compensatory strategies using a variety of assistive technologies for cognition

- Provides cognitive rehabilitation services to workers who receive state vocational rehabilitation services
Kathy Moeller’s relationship to cognitive disability

- At the age of 38, was diagnosed with a Severe TBI in 1990 from a car crash
- One week coma, five week hospitalization
- 5 months residential cognitive rehabilitation followed by 9 months outpatient rehabilitation
- Significant difficulty with short-term memory, word finding, communication, processing facial expressions

- Cognitive Rehabilitation focused on compensatory skills training – use of paper day planner & cue cards
- Early short-term memory and speed of processing test results: 5th – 8th percentile
- Spent two years re-learning how to read (despite previous Masters level education in Literary Criticism)
- Relearned how to dress, other ADLs, make simple meals, drive, shop and work part-time at entry-level

- Multiple unsuccessful job attempts over two years while a client of Vocational Rehabilitation in two states
- Visual memory for faces never returned
- Significant other short-term memory deficits remain (sense of time passing, organization)
- Dyscalculia persists
- Executive function remains challenging without visual cues

- Has lived with, networked with and coached 1,000+ individuals with cognitive disabilities over 25 years
- Has experienced typical age-related cognitive decline in recent years
- Currently experiencing cognitive decline neurologist attributes to Parkinson’s Disease diagnosis

- Certified Brain Injury Specialist (CBIS)
- Compensatory Skills Trainer (life and work-related skills) since 1993
- Creator of assistive technology for cognition -- BRAIN BOOK® System in 1993 & My Bionic Brain® in 2008)
- Vocational Rehabilitation Consultant specializing in brain injury since 2000
TBI and Intellect

• Relationship between intellect and functionality after TBI

• Myths about “severe” vs. “mild” brain injury

• With adequate Assistive Technology and Compensatory Skills Training, individuals with mild, moderate and severe cognitive challenges can often “access” their intellect and dramatically increase function

• Concept of “cognitive mobility” – being able to get around in the world and function well
What the ATP and VR counselor would be wise to know

- The “lay of the land” from the end-user’s perspective
- The value of the mine-field metaphor
- How the Cognitive Loop works
- How so-called deficits can be used as strengths
- The difference between presenting strategies and teaching tactics
- How accommodations fit into the mix
- What technology is available in a neuro-diverse world

All of the above impact the selection or recommendation of AT for Cognition
High-tech AT Options
Note-taking software

Reminder Systems

More:
“10 Reminder Systems for You To Consider”

http://www.productiveandorganized.net/2011/01/10-reminder-systems-for-you-to-consider.html
Low-tech Options
Calendars, index cards, etc.
And...
High-tech Options

HOW TO - Pair ZaggKEYS FOLIO Keyboard/Cover for iPad mini to my iPad mini-Duplication
These EOPS work for Initial pairing and for connection between iOS. DONT NOT TESTED.
Be sure the Bluetooth function in PC Settings is OFF
Be sure Zagg keyboard power button is OFF
Ensure action is within 30 feet away from me
Turn Power switch on, Zagg keyboard to 100% position (opposite of button is downward). DO NOT CONFUSE Power Button with Home Button.
LED light will flash red, once and disappear
NOTE: If LED turns red, keyboard no longer works

Google calendar

livescribe
TURN YOUR PAPER ON.
The New Paradigm

• End-user receives appropriate compensatory skills training

• End-user receives appropriate Assistive Technology for Cognition

• End-user receives appropriate pre-employment time and technical support to master skills

• All team participants work together to coordinate resources for appropriate long-term solutions
Ann Price’s Relationship to Cognitive Disability

Ann Price
Customer Service & AT Support

- 20+ years’ life experience with dual diagnoses of Traumatic Brain Injury Autism. College education in IT

- Began using Assistive Technology for Cognition in 2008

- Consumer of state Vocational Rehabilitation Services (OJT) and user of various AT for Cognition
Evernote Demo
HOW I USE EVERNOTE

1. BACKUP & ARCHIVE STORAGE
2. INFORMATION GATHERING & STORAGE
   - RESEARCH
   - SHARING
   - CROSS-REFERENCING
3. LISTS
   - CHECKLISTS
   - SHOPPING LISTS
   - WISH LISTS
BACKUP & ARCHIVE
INFORMATION GATHERING & STORAGE

- RESEARCH
- SHARING
- CROSS-REFERENCING
LISTS

- CHECKLISTS
- SHOPPING LISTS
- WISH LISTS
Keri Bennett’s Relationship to Cognitive Disability

Keri Bennett, MS Ed, CBIS
State Vocational Rehabilitation Agency
Program Director, Acquired Brain Injury

- 25+ years’ experience as a state vocational rehabilitation professional

- Currently serves as Program Director for state of Nebraska’s Acquired Brain Injury programs and grants

- Career focus has been on serving individuals in the workplace whose barriers stem from cognitive disabilities
Lieben und Arbeiten
(To Love and To Work)

Keri Bennett
What should a healthy human be able to do well?

“Lieben und arbeiten” – to love and to work. – Sigmund Freud
The Goal

I love my job
Recommendations

• Move from a “medical” service delivery model to a “holistic” approach to service delivery

• Move from short-term, agency and process-driven goals, services and supports to long-term, sustainability-driven services and supports

• Move from an external locus of control to an internal locus of control
Medical Model

- Disability is a problem to be “fixed” before going to work

- View impediments as separate issues instead of parts of the whole person

- Focus only on aspects of impediments that appear to impact work or a specific worksite
Holistic Approach

• Engages the whole person (physical, emotional, mental, spiritual)

• Views challenges as they impact the whole person (work, home and community)

• Broader view of challenges and their impact on work

• Customize solutions to the person’s strengths and challenges, not just the immediate job
WIOA
Impact on ATP’s services

• Increased state VR program role in transition from school to adult life

• “Customized employment” defined

• Updated “supported employment” definition

• New performance measures for state VR programs
Agency and Process-driven

- “Place and pray” employment services
- Revolving door closures
- “That’s not my job.”
New Paradigm:
Sustainability-driven

- Start thinking of AT, strategies and possible accommodations early, not after placement

- Matching Person to AT System – Marcia Sherer

- Flexible AT, strategies and accommodations that move *with* the individual
External Locus of Control

- Attribute success or failure to outside influences, such as luck, fate, timing, etc.

- VR staff are well-intentioned, but misled in trying to control all variables

- Change is the only constant!

- Our “helper” role must change
Internal Locus of Control

• Attribute success and positive results to hard work, responsibility, etc.

• “I have the power to change my life.”

• Research indicates an internal locus of control results in happier, more productive people.
Remember…

“Sometimes the questions are complicated and the answers are simple.”

Dr. Seuss
Call to Action

- Develop an informed “relationship” to Cognitive Disability

- Embrace a leadership role by supporting team approach and collaborative partnerships

- Embrace a holistic, consumer-centered, empowerment-focused approach to screening for Assistive Technology for Cognition

- Acquire basic understanding of cognitive rehab and relationships among Compensatory Skills training, Assistive Technology for Cognition, technical support and how to work with state Vocational Rehabilitation agencies

- Acquire basic understanding of how individuals with cognitive challenges learn, including how to incorporate “low-tech, low-cost” external memory and other cognitive supports

- Know where to go to obtain up-to-date information for following fast-moving developments of high-tech AT for Cognition resources

- Increase awareness of what it feels like to experience cognitive disability
Open Q & A / Discussion

Thank you!

Presenters’ Contact Information

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         AnnP@CognitiveHarmonics.com
         Keri.Bennett@nebraska.gov
Handouts
(will be provided in hard copy form)

• Challenges Checklist (Screening Tool)

• Assistive Technology Recommendations Worksheet

• Worksheet for opening video, “What was the question? I forgot”

• Forbes On-line article: “Using Technology to Mitigate Cognitive Disability”

• Article: “What is the WIOA” (recently passed Workforce Innovation and Opportunities Act)