Mobile Technologies as Workplace Supports

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AT for Cognition Lab, VCU

- 12+ years of research on handheld devices & smart homes as cognitive-behavioral aids for brain injury, autism, degenerative neurological conditions
- 5-year study of iPod Touch for Autism at work (NIDRR)
- 5-year study of body-worn sensors and health-based self-management for veterans with PTSD (DoD)

Reducing the Need for Personal Supports among Workers with Autism using an iPod Touch as an Assistive Technology: Delayed Randomized Control Trial

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Results

- During first 6 months on job:
  - Similar levels of job performance and retention
  - Both groups learned to use and maintain their iPods (only 3 lost/damaged); all felt the devices made them more independent on job and preferred them to direct supervision
  - Now Group required a mean of 48 hours of job coaching first 12 weeks; Delayed group required 75 hours

AT for Cognition

People with cognitive-behavioral challenges least likely group to use AT

“Small” AT strategies can be life-changers.
Technology is changing rapidly.
Challenge now is to select appropriate features from an all but overwhelming catalog of options.

Smartphones

Samsung Galaxy 7
Apple iPhone 6S
Nokia Lumia 1520
iPod Touch

Apple iPad(s)
- Large icons for dexterity-challenged
- Louder speaker for augmentative communication
- Larger screen

iOS Accessibility
- Voice Over
- Speak Screen
- Dictate Text with Siri
- Zoom
- Assistive Touch
- Touch accommodations
- Predictive Text

Switch Control & Scanning

Android Tablets
- Samsung Galaxy Tab S2
- Google Nexus 9
Windows & Blackberry Tablets

Blackberry Playbook

Microsoft Surface Pro 4

The App Deluge


App Challenges

Independent Developers - so as OS updates, apps may not
Apps disappear from App Store or Google Play
Apps that used to work well now have glitches
Funding now largely driven by subscription or in-app purchases
Companies using Android build curated sets of apps that only run on their devices

Mobile Devices

Scheduling/Reminders
Time Management
Task Sequencing
Way-Finding
Person-Tracking
Communication
Augmentative Communication
Behavioral Support
Health/Mood/Sleep tracking
And more...

The ATC Challenge

As with any assistive technology, first assess functional challenges in everyday life.
Examine the human supports now needed in order to perform chosen tasks.
Is there a low-tech or electronic substitute that can provide that support?
Seek the simplest, most straightforward solution that works.
Provide training and follow-along in real world situations to test usefulness of the chosen solution.
Solve one problem at a time.
Aim for no more than 4-5 apps for cognitive-behavioral support.

Reminders

- iCal or Google Calendar
- Clock (iOS)
- Reminders
Typical reminders

- Medications
- Wake up
- Catch bus
- Clock in at work
- Breaktime (with timer)
- Lunch (with timer)
- Switch from one task to another
- Clock out and go home
- Plug in device to charge overnight

Adapted Reminders

- BugMe!
- VoCal

Time Timer

for work speed, attention to task, etc.

Medication Management

My Pillbox
Pill Reminder

What are you looking for?

- Easy to set up?
- Ability to set wide variety of recurring reminders?
- Ability to add a note to the reminder? A photo?
- Variety of sound alerts?
- How loud is alarm? How long does it sound?
- Talking alarm?
- Snooze function?
- “Yes I did it” monitor?
- Countdown timer?

Typical List items

- Step-by-step instructions for any home or work task
- Way-finding directions
- A list of tasks that need to be done during the day
- Social story cues
- A “message to self” with behavioral advice
Task List options

iOS
Notes

Google Keep

Task List Considerations

- Can you program your own task lists?
- Can a supervisor or caregiver do so?
- Can you give your lists titles, so they are easy to locate?
- Can you check off tasks as they are completed?
- Is there an auditory option for elementary readers?
- Can you append a photo or video for visual learners?
- Is there a reminder alarm feature?

Task-Sequentialing Powerpoint

Plan it, Do it, Check it off

- iOS
- $2.99
- Picture-based task sequences with audio prompts.
- Tap to check done.

CanPlan

- iOS only, $14.99
- Slide Show
- Audio/Photo/Video
- Reminder alert
- I've done it check off

Task-Sequentialing Video

- Best is to show client performing task successfully.
- Can use during task.
- Also pre- post-task for rehearsal/review.

Good morning Len! Let’s make coffee.
Behavioral Prompts

19 year old on first job
Medical Supply aide at hospital
What to do when people bother you.

Picture Scheduler

- iOS $2.99
- Create reminder
- Add picture and audio
- Direct link to video of activity

Functional Planning System

- $4.99
- iOS
- Text
- Photo
- Audio
- Video
- Set reminders for tasks

Using Video prompts

- Task-Sequencing
- Way-finding
- Behavioral cues
- Social stories
- Short and to the point
- Close-ups
- Good lighting
- Voice Over while filming saves time
- Preview/play-and-pause/Review

How much do you need?

- Text Note
- Add picture
- Picture sequence
- Add audio
- Video
- Reminder?
- Think forward and reverse
Real-time help

- FaceTime (Apple iOS only)
- Skype (all platforms)
- Plain old phone

In Case of Emergency

- Built in for iPhone
- Android: Medical ID
- Samsung “Safety Assistance”
- SOS One Click app

Person Locators

- iOS Find My Friends
- Google +
- Family Locator by Life 360

Mood Tracker

Relaxation Apps

- Simply Being: Guided Meditation for relaxation and stress reduction
- Calm: A guided meditation app
- Tactical Breathing Trainer
Music Folder

Augmentative Communication
- Confer with SLP to determine the right app for you
- Confer with OT for device adaptations
- Sometimes an AAC hardware will work better
- Consider school legacy tools

Voice4You

Touch Voice
- $20
- Short medically appropriate phrases
- iOS or Android

Speak it!

Personalized Suite
- Basic Adaptations:
  - Reminders
  - Instructional Cueing
  - Behavioral Cueing
  - Way-Finding
  - Communication
  - Augmentative Communication
  - Stress Relief
  - Device Access Adaptations?
- Don't Forget:
  - Protective Case or Belt Clip
  - Simplify Screen for Easy Access
  - Speakers?
  - Keyboard?
  - Behavioral Contract?
Patient Services Representative Assistant in Hospital Records Center

- Filing patient charts alphabetically
- Checking shelves for alphabetical order
- Scanning new patient information
- Sorting and delivering faxes to the 7 doctors

iPod Touch Reminders

- Wake up
- Morning routine
- Catch bus
- Clock in at work
- Breaktime (with timer)
- Lunch (with timer)
- Switch from one task to another
- Clock out and go home
- Plug in device to charge overnight

Task Support in Notes

- Story Kit
- Picture sequences
- Captioning and drawing
- Audio cues

The challenge

Instructional Slide Show

- Story Kit
- Picture sequences
- Captioning and drawing
- Audio cues

http://www.youtube.com/watch?v=RSWQkUS4kXk
With Story Kit prompts

References


Thank you!

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