

Using Smartphones and PDAs to Enhance Memory and Organization

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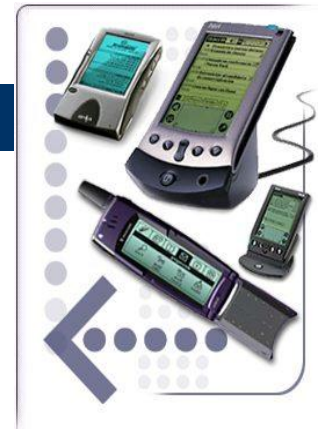
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Why Care about Research on Monday Afternoon?

- Evidence based research is asked for in order to fund generic devices
- This research can be used to justify best clinical practices
- This information can be used to advocate for policy change and for third party payers to provide devices.

What are Electronic Organizers?

- Personal data assistants (Palm, Pocket PCs)
- I-Touch/I- Pads
- Pagers
- Smartphones
- Portable voice organizers



Why study electronic organizers?

- *At school:* Improved independence, follow schedule, stay on task, and move between tasks (Epstein et al 2001)
- *At work:* Increased accuracy and performance in complex tasks, improved scheduling and time management, decreased use of external prompts, and easily integrated into work place (Davies et al 2002; Furniss et al 1999)
- Independent living skills including medication and oral hygiene (O'Hara & Davies, 2002)

Why Focus on Memory and Organization?

- Problems with memory and attention are clearly linked to difficulty learning in school, performing activities of daily living, and participating in community activities for these individuals.
- Organization does not develop as a part of executive functioning.
- Support personnel in functional environments report considerable amounts of time are spent in providing reminders for functional tasks required during the daily activities of these individuals.
- The desire to foster independence for functional activities is increasing.
- If memory and organization can be enhanced with electronic devices such as PDAs or smart phones at a young age, independence might be fostered.

Purpose of the Collaborative

- Explore electronic organizers re: cognitive disabilities in memory and organization
- Conduct surveys with potential users
- Determine potential adaptations of devices Present findings to developers of personal data assistants (PDA's)
- Conduct user trials to identify best practices in implementation
- Inform consumers and other stakeholders as they make technology decisions

Why “Generic” Assistive Technology?

- It is in the public domain-we all use it
- The prices are more reasonable for purchase and replacement
- The adaptations needed and that should be recommended to manufacturers will aid all of us
- These devices are more socially acceptable

So--Today

- I am sharing with you the results of these studies so you might know how electronic organizers might be used with individuals who have memory and organizational problems.

Collaborative Partners

University of Akron, School of Speech-Language
Pathology and Audiology

Temple University, Institute on Disabilities

Spaulding Rehabilitation Hospital

Brain Injury Association of America, Inc.

In Vivo Trial Samples

- University of Akron-children and adolescents with traumatic brain injury or intellectual disability
- Spaulding Rehab-adults with traumatic brain injury
- Temple University-adults with intellectual disabilities

Trials

- 35 persons per site=105 total
- Randomized 8 week trials of 4 conditions:
 - (1) **Baseline:** subject reminder-list of times for tasks and calls by week
 - (2) **Paper/Calendar:** subject reminder included in an “At A Glance” Weekly Minder
 - (3)&(4) **PDA:** subject reminder-a Palm Zire and a Dell Axim
- Asked to complete 2 tasks (phone call and job for another person) several times during each week

Trials: In Depth Follow Up with PDAS and Smartphones

- Eight persons from each site were seen for 6-8 additional weeks and given more personal work with the generic devices
- Asked to complete 2 tasks (phone call and job for another person) several times during each week
- Were encouraged to “play” and explore devices as well as complete specified tasks

What Did We Learn From all the Trials?

- Clients benefit from electronic reminders.
- The benefit is likely due to the audible “beep”
- Teachers and aides reported that clients were more likely to respond to the electronic prompts than the verbal reminders they frequently need to use
- Using electronic reminder systems can enhance independence even if the device was programmed by significant others.

What Did We Learn?

- PDAs had better success rate than use of lists or reminders or paper calendar
- Paper calendar was not as successful as ANY of the other three conditions
- Given one verbal reminder in the morning had higher success rate of task completion than no reminders
- Use of the generic devices made the clients “socially” acceptable and included in meaningful communications.

What Did We Learn?

- Electronic aids are useful for some persons with memory/organization problems as a result of cognitive challenges.
- Evidence based studies are emerging to support use.
- Generic devices may be most accessible and useful
 - Handhelds (Mobile Devices): PDAs, smart phones, I –Touch, I- Pads

What Did We Learn?

- Generic devices have appeal because
 - Socially more acceptable
 - Prices are lower than “dedicated devices”
 - General public understands use more easily

What Did We Learn?

- PDAs and smartphones provide the most support for memory and organization
- Success is related to the beep and vibration of the device
- Day planners were the least effective—even less than simple lists
- Persons do not have to learn to program the devices—responding consistently to the alarm is more important
- Social benefits are an added bonus!

Clinical Applications from this Research

- Videos of Individuals during Trials
- Brochure for Manufacturers
- Brochure for Consumers
- Brochure for Clinicians

MB- Dell Calendar

vimeo.com/irh/calendar

MB Teaches Another Student to Use the Dell

vimeo.com/irh/teaching

A Student Demos Font Size Adjustments

vimeo.com/irh/font

RW

vimeo.com/irh/interview

RW – Cell contacts

vimeo.com/irh/cellcontacts

MB – cell picture

vimeo.com/irh/picture

MB – Cell text message

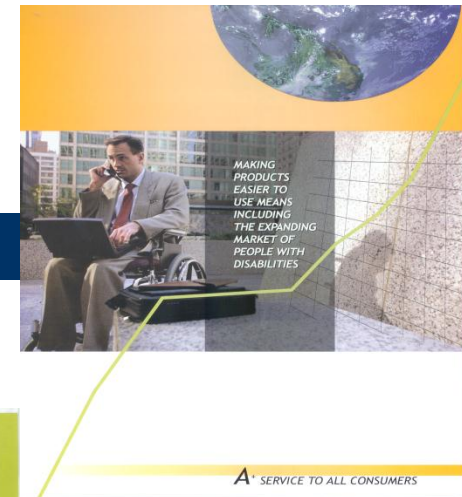
vimeo.com/irh/text

Mom's Reaction to PDA

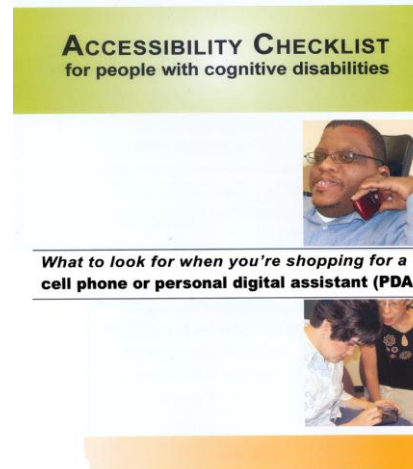
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Clinical Applications from this Research

- Brochure for Manufacturers



- Brochure for Consumers



- Brochure for Clinicians

PDA Intervention Plan Implementing Electronic Memory and Organization Aids

Using this Guide

Use this guide to provide assistance for intervention team members to assess the need for electronic memory/organization intervention, develop an intervention plan, and monitor progress through evaluation forms.

Electronic Memory Organization Aids

PDAs, Smartphones, and cell phones all include personal assistance functions. Cell phones are included since many feature the same functions as PDAs.

PDA stands for personal digital assistant and is the most complex and computer-like of all the devices. In fact, PDAs are often referred to as pocket computers or palmtops. Functions include address books, alarm, calendar, internet, e-mail, and word processing software.

- Examples: Palm Zire™, Dell Axim™

Smartphones combine a full-featured mobile phone with handheld computer functions such as touchscreens, miniature QWERTY keyboards, calendar, address book, and notepad.

- Examples: Blackberry™, Nokia™

Cell phones are portable electronic devices used for mobile communication. Memory aids on cell phones include alarms, calendars, and e-mail access.

- Examples: Motorola™, Nokia™, Samsung™, etc.

Key Concepts

- Increase independence for your client
- Assist with organization and memory
- Provide a means of planning
- Promote increased socialization with peers and family

Tips for Interventionists

- Acquire knowledge and experience about devices to better assist your client.
- Work on your client's responses using the device and then move to teaching entry if possible.
- Involve the intervention team in the use of device.
- Begin with frequent intervention and gradually increase sessions over time.
- Encourage your client to wear the device, for example on a lanyard, to prevent loss or theft.
- Get feedback from team and your client on a regular basis.
- Encourage exploration of device through use of various functions, including games.
- Remember that the use of device is not limited to work-tasks and can be used for fun.

PDA Intervention Plan

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ACCESSIBILITY CHECKLIST

for people with cognitive disabilities



What to look for when you're shopping for a cell phone or personal digital assistant (PDA)



AP & “Frank”

vimeo.com/irh/pda

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