Enhancing Independent Task Performance of Individuals with Developmental Disabilities Through the Use of an Application on An iPad

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Today we're going to learn…

- What is the rationale for using AT?

- What is UDL and why is it important?

- How can I use Video Based Interventions?

- How can I use the Picture Scheduler Application on an iPad for my students/clients?

Student/Client Objectives

- Increase skill performance

- Reduce job coach/therapist support prompts

- Maintain skill performance

- Generalize task performance across tasks and settings

Rationale

- Assistive technology (AT) increases self-determination and self-esteem
- Employers and co-workers view employee as one of the group
- iPad and apps are readily available and cost little compared to other supports
- Age appropriate and enticing
- Can lesson costs of services

Assistive Technology

- Any item, piece of equipment, or product system, whether commercially off the shelf, modified, or customized, that is used to increase or maintain the functional capabilities of a person with a disability
- Can range from high, mid, to low tech

Assistive Technology

Think of which High Tech AT item could be beneficial for your student or client.

HIGH TECH

< **Loc Dots** – raised plastic dots that are used to tactually identify keys on a keyboard or objects, e.g., house keys

< **Key Guard** – clear lucite keyboard cover with holes cut out; facilitates selection of keys

< **Zoomcaps** – (Meeting the Challenge or Don Johnston) - enlarged individual stick-on key overlays make finding keys easier

< **Big Keys** – one of several alternative large letter, abc order keyboards for young children or students with motor or cognitive challenges difficulties

< **Touch Window** – (Edmark) touch sensitive screen that goes over the monitor
< **Alternative Keyboard, e.g., IntelliKeys Keyboard** (IntelliTools, Inc.) - use as keyboard without with software or with IntelliTools Software Suite (IntelliTalk III talking word processor/authoring tool; IntelliPics Studio multimedia tool; IntelliMathics manipulative math program; activities available online to download)

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Assistive Technology

Think of which Mid Tech AT item could be beneficial for your student or client.

MID TECH (battery powered)

< **Time Timer** (Generaction) – visual depiction of elapsed time; 3", 8" and 12" sizes; students see a visual depiction of time remaining for a task in red as the clock counts down

< **Speaking Homework Wiz** (Franklin Electronic Publishers) – promote reading support for student independence; HomeWork Wiz ($24.95) & Talking Homework Wiz ($49.95) for primary & early elementary; Merriman Webster Dictionary & Thesaurus ($59.95) or the Speaking version ($79.95) for upper elementary to high

< **Talking Photo Album** (Onion Mountain Tech; sometimes available at discount stores, e.g., Joanne's Fabrics)– Places pictures/story pages in the plastic sleeves and record up to 24 pages of speech ($29 for photo album, $45 for album with idea book; can also be found sometimes at large discount stores))

< **Neo** (AlphaSmart, Inc.) portable keyboard – simple word processor; connects directly to computer/printer to transfer text; software applets available for Inspiration, KeyWords keyboarding program & Co:Writer word prediction software.

Assistive Technology

Think of which Low Tech AT item could be beneficial for your student or client.

LOW TECH

Motor/Writing & Reading Supports

White board – easier for some students to use (some are magnetic as well)
< **Page holders** (TOP) Page Up (MTM - Minstrel Trading & Marketing, Corp., Onion Mountain Tech) each/minimum purchase of 5, small footprint but holds large papers), and (BOTTOM) acrylic cardholders (Maddak, Inc./Ableware® - purchase at ILS -Independent Living Aids, $5.95); also look for clear picture holders (office supply) - to hold story pages, schedules, directions, vocabulary words, math tables, etc.; place in page holder on desk for continuous access; student can manipulate cards to create sentences, number problems, etc. if writing is difficult

< **Finger grip ruler** (Westcott, office supply, $1) – for students with fine motor difficulties; allows ruler to be grasped by raised center grip bar; also use for focusing on words/lines while reading

Magnetic sheets/business cards – can be cut as needed to create numbers, letters, words, sentence strips; put on cookie sheet, metal ruler/yardstick (use also as visual/reading supports)
Magnetic picture frames – all sizes; to hold pictures/words
Velcro (AliMed offers discounts to schools) – attach letters, words, sentences, etc. on ruler/yardstick or garden gloves/mittens for interactive lessons
< **Velcro enhanced books** – copy or cut out graphics from books; attach velcro to picture and book for interactive lessons; purchase commercially made Velcro books, e.g., Interactive Stories (Mayer-Johnson, $19.00)

Assistive Technology

- Issues in using high tech AT with PWD:
  - complexity in operation
  - cost
  - limited market for devices designed for individuals with cognitive impairments
  - lack of knowledge about availability of devices
  - lack of training for users and support staff
  - negative stigma

Universal Design for Learning

- A methodology aimed to help meet the challenge of diversity by using flexible materials, techniques and strategies

- Designed from the onset

- Meets the needs of the greatest number of users

- Lowers cost and increases productivity without having to modify product

When we think of flexible and user friendly technology, which multi-billion dollar company comes to mind?

http://techland.time.com/2012/05/07/six-reasons-why-apple-is-successful/

YouTube

Video Based Modeling

Video Based Intervention

- Standardization of presentation of training

- Faster skill acquisition

- Generalization to untrained settings

- VBI currently use to target:

  – Improving social interactions

  – Improving language and communication

  – Teaching functional skills

  – Increasing compliant behaviors

Research in the Literature
increasing task performance in employment settings

- VICAID system & Palmtop Computers
- 2007 & 2009 Van Laarhoven and collegues
  - iPod & video editing software
  - Increase independent work performance at animal shelter
  - Video files captured on video camera, edited using Pinnacle Studio software, uploaded to iTunes playlist
  - Required set-up time to record, edit, and upload

Advanced Technology since Tech Act 1988

- Costs of devices and software have decreased due to the increase in commercially available products

- Independent device navigation has increased due to simplicity of user interfaces

- Portability has become the standard in device design

- Multimedia devices have enabled individuals to record, edit, and play media within the same device

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Picture Scheduler Application

$2.99

Picture Scheduler Application
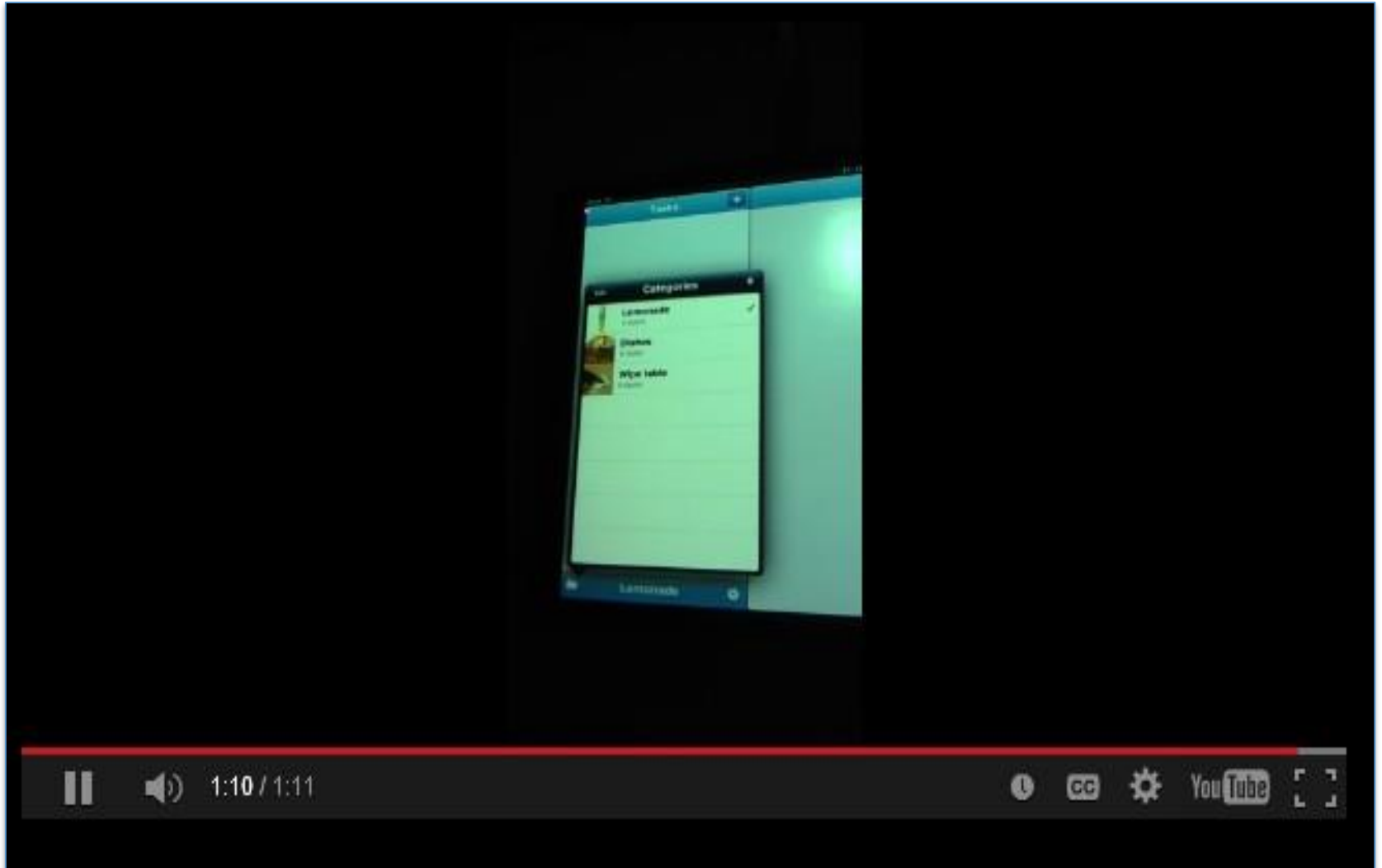
Picture Scheduler Application

- Developed by Petr Jankuj & Dr. Toni Van Laarhoven

- App was optimized for creating and organizing personal tasks for individuals with disabilities

- Designed for those needing visual and auditory supports to complete tasks

- Age-appropriate for adults!!

Using Picture Scheduler

Task: Make a Smoothie

1. Smoothies were designed to all have 10 steps

2. Each video step took no longer than 1 minute

3. Participants wanted to complete the task in a timely manner in order to drink the smoothie

4. Can be taught as either vocational or independent living skill

Your turn…

How can you use the Picture Scheduler app to increase skill performance & independence while decreasing staff prompts for a student in your class/client in your program?

1. Describe the task.

2. List the steps required to complete the activity (task analysis).

3. Create a narrative for each step, that would function as the verbal directions in each video.

Skill Assessment

- Before we start using this intervention, we need to make sure students/clients have certain skills:
  - Independent Device Navigation
  - Materials Identification
  - Dexterity

Independent Device Navigation

- Users must demonstrate the ability to use an iPad device and the *Picture Scheduler* application.

- A system of least prompts can be used to evaluate navigation skills.
  - independent (no prompting needed),
  - verbal prompt,
  - gestural prompt (pointing), or
  - physical prompt (guiding finger hand-over-hand to touch the icon)

Independent Device Navigation

Navigation	Job Coach Prompting	Prompt Used	
"Turn iPad on."	I: Independent: No prompt used	☐	I
	V: "Push the black button on the top."	☐	V
	G: JC points to the on/off button	☐	G
	P: JC guides participant finger to push button	☐	P
"Open Scheduler app."	I: Independent: No prompt used	☐	I
	V: "Touch the picture of a camera and check mark."	☐	V
	G: JC points to the icon	☐	G
	P: JC guides participant finger to touch icon	☐	P
"Open the category menu."	I: Independent: No prompt used	☐	I
	V: "Touch the folder on the bottom left of the screen."	☐	V
	G: JC points to folder	☐	G
	P: JC guides participant finger to touch folder	☐	P
"Touch the _____ task."	I: Independent: No prompt used	☐	I
	V: "Touch the _____ picture."	☐	V
	G: JC points to picture	☐	G
	P: JC guides participant finger to touch picture	☐	P
"Touch the _____ step."	I: Independent: No prompt used	☐	I
	V: "Touch the _____picture."	☐	V
	G: JC points to picture	☐	G
	P: JC guides participant finger to touch picture	☐	P

Materials Identification

- Do users know the meaning of vocabulary used in the task videos?

- If the task is sweeping, does the user know what a broom is?

- Making Smoothies:
  - "Please show me the milk."

Frozen Pineapple	☐ Correct ☐ Incorrect Incorrect choice:
Milk	☐ Correct ☐ Incorrect Incorrect choice:
Cocoa Powder	☐ Correct ☐ Incorrect Incorrect choice:
Bananas	☐ Correct ☐ Incorrect Incorrect choice:
Oatmeal	☐ Correct ☐ Incorrect Incorrect choice:

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Dexterity

- Do the users have motor skills required to perform the task?

  - If the user is making a smoothie, can he/she twist off the milk cap?

- If difficulty is found with fine or gross motor skill, make an accommodation.

  - Substitute for different milk container

Intervention

Step 1: Milk

Measuring Task Performance

Category: **Strawberry Banana Smoothie**	Prompting Needed & Accuracy

Milk 1. Pour 1/2 cup (blue) milk into blender cup	☐ *Watch video*
	  ○ Accurate
	  ○ Error __PE __NRE
	☐ *Re-watch video*
	  ○ Accurate
	  ○ Error __PE __NRE
	☐ *Try together*
	  ○ Accurate
	  ○ Error __PE __NRE
	☐ *One more*
	  ○ Accurate
	  ○ Error __PE __NRE
	  ○ Incomplete

Limitations

- Intervention works best when on iPad stand
- iPad can not be operated when user is wearing gloves, i.e. food prep or gardening; stylus may be needed
- May be difficult for users with visual impairments
- Occasional app glitches

Thank You! Any Questions?

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