

## Understanding and Facilitating the Use of Assistive Technology

[www.jobdev.wikispaces.com](http://www.jobdev.wikispaces.com)



Fred Tchang, ATP  
Director, Assistive Technology Services



## Advancing Opportunities

- Onsite Eval & Training
- All disabilities
- Technology Lending Center



[assistivetechologycenter.org](http://assistivetechologycenter.org)



## Why not direct people to jobs that don't require accommodation?

- Focus on interests, not disability
- Expands job choices



## Real People Using Technology

- Young Adult with Autism
- Help with moving from task to task

Group-behavior is communication



Example! Jeffrey



Dr. Tony Gentry,  
Dept of Occupational Therapy,  
Virginia Commonwealth University



## AT Supports APSE's CESP's Core Values

- All people having the right to work and to equal access to employment in the general workforce
- Job seeker strengths interests and talents
- Self determination and empowerment



## What do we mean by Assistive Technology?

- All People Use Tools To Extend Their Abilities



- What tools do you use?



Try it! Pulse Pen



## AT FOR COGNITIVE IMPAIRMENTS



## Tasks

- 1 Appointments / Transitions
- ☑ Remembering To Do Tasks
- 👁 Staying Focused on Task at Hand
- 📅 Following Steps in a Process
- 🚗 Travel Training
- 👤 Behavioral Support



### 1 Appointments / To Do

- Day Planner, Picture Schedule
- Digital Recorder
  - Livescribe ex.
- Timex Datalink



### ☑ Appointments / To Do

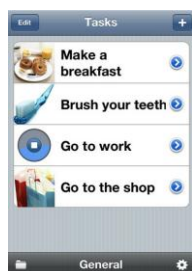
Smartphone / iPod Touch

- Built-in Calendar / To Do list
- Built-in Audio Recording



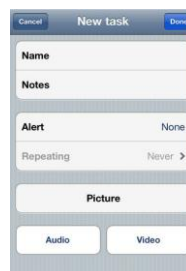
### ☑ Appointments / To Do

Sample App: Picture Scheduler



### ☑ Appointments / To Do

Sample App: Picture Scheduler



## ☑ Appointments / To Do

Sample App: Picture Scheduler

- Can use pictures, audio, video
- Reminders are set by time, can repeat



## ☑ To Do Tools

Tips! Plain and Simple To Do List

- To Do lists
- Day Planner, Desk Calendar To Do lists
- Digital recorder



## 👁 Tools for Staying Focused

- Watchminder
- Livescribe pen
- App on Smartphone / iPod Touch



## 👁 Tools for Staying Focused

Sample App: White Noise



Advancing Opportunities

## AT Consideration



Apply it! In Groups

- Discuss your job seekers
- Consideration Guide
  - Voc. Goal
  - Strength / Difficulties
  - Tasks
- Choose spokesperson



## Why use “Everyday Technologies” as Assistive Technology?

- Easy access- they are out there
- Easier to support- family, other people know the basics
- More socially acceptable



## Hardware Options

### • Cell Phone

- Start with what people have
- often have calendars
- Person must know what beeping reminder means
- Drawback- lack of touch screen means more button presses



## Hardware Options

### • iPod Touch

- Relatively inexpensive (\$199)
- iPhone without the phone
- Built-in cameras, mic



## Hardware Options

### • iPad

- Larger buttons
- Larger text
- Bigger speaker
- Still has Built-in cameras, mic



## Hardware Options

### All Smartphones -built-in Apps

- Calendar with alarm
- To Do List
- Voice Recorder
- Contacts
- Photos
- Videos



## Following Steps

- Written or picture instructions
- Video Prompting- record each step
- Video Modeling- view the entire task



## Following Steps

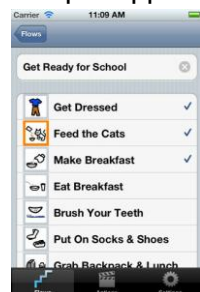
### Sample App: Visules

- Simple to edit, simple to use
- A checklist; no connection to time
- No audio, no video



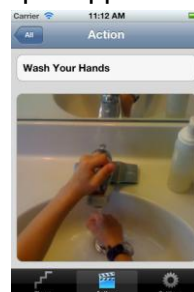
## Following Steps

Sample App: Visules



## Following Steps

Sample App: Visules



## Travel Training

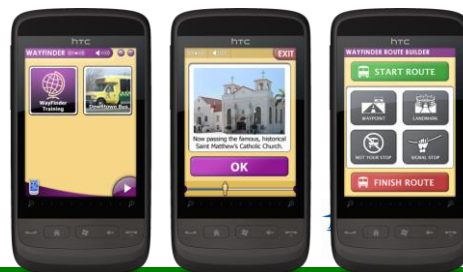
Use picture / audio or video examples

- Pictures of actual places
- Video can show key landmarks



## Travel Training

- Sample App: Way Finder



tunities

## Travel Training

- Sample App: Way Finder  
(Specialized app from Ablelink Technologies)

- Works with phone's gps, so can give cues specific to not only time, but location
- Ex: "don't get off yet- not your stop"
- currently only made for Windows PC handheld (not for iPhone or Android)



## Behavioral Support

Use picture / audio or video examples

- Record person coaching themselves what to do when upset
- Or record parent / person they respond to best



## Behavioral Support

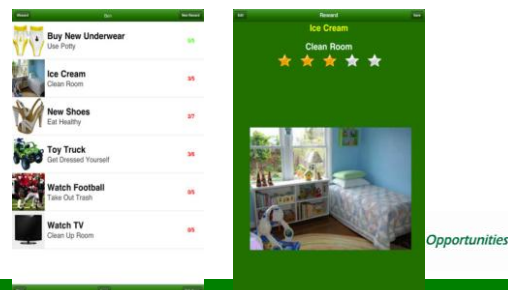
### Video Self-Monitoring

- Positive representation of themselves doing the task
- Requires task analysis, video editing



## Behavioral Support

### • Sample App: iReward



## Practical Issues

- Belt clips / Lanyard to keep hands free
- Louder Speaker and Case: iMain Go
- Protective case only- Otter Box
- Distractibility of other apps
  - Put apps in folders
  - iOS 6- can lock out the home button



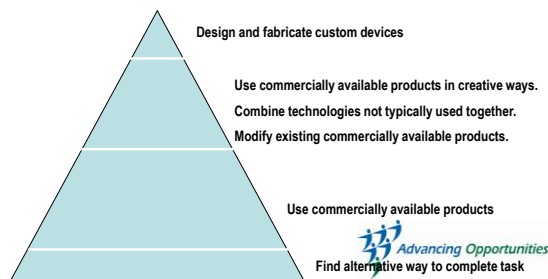
## My Job Seekers

How do these accommodations apply to my job seekers?

Which ones would AT help most?



## Accommodation Hierarchy: Customized Accommodations



## Following Steps: Problem

You know there is a problem when...

- Person not clear on order of operations
- Cannot read scale, or doesn't know when appropriate weight is reached
- Quality Checks turn up the wrong number of parts per bag



## ☞ Following Steps: Solutions

- Sequence Prompt
  - parts presented in order in bins
  - record prompting messages on communication device
  - picture cue cards of process in sequence
  - timed message asking person to move to next step



## ☞ Following Steps: Solutions

- Goal Prompt
  - Weight with buzzer when set number of pounds is reached
  - counter that spits out a certain number of cards
  - fixture that is “full” when the correct number of parts are inserted



- DVR consumer
- QA numbers low; need to increase in order to remain
- Kathy can handle small parts, place in bag
- Difficulty with counting, knowing when goal is reached



## Task

- count 8 small parts out
- place in bag
- place bag in larger box



## Accommodation

- Fixture that allows parts to be slid in
- when there are enough parts, fixture is “full”
- made to fit different sized parts
- can put in or remove blanks for different number of parts



## Goal Prompt



Advancing Opportunities

## A white, rectangular, ribbed object, possibly a mold or a component, resting on a wooden surface. It has a small metal clip attached to its top edge.



- Learning Styles controversy
- Clearly, disabilities can affect learning:
  - Visual perceptual abilities
  - Auditory comprehension
  - Motor / Visual-Motor skills



- **NaturalReader** (free basic version; \$49 to get better voices, toolbars)
- **Text Aloud mp3** (nextup.com)
  - Cheap (\$29); adds toolbar to web browser; must select text;

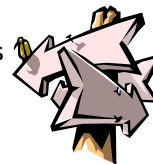


NaturalReader!



## Individual First

- Needs
- Abilities
- Expectations



## Then Technology

- Interface / input
- Processing
- Output

 **Output**  
*Advancing Opportunities*



## The SETT Framework

S = Skills  
E = Environment  
T = Tasks  
T = Tools

Adapted from Joy Zabala,  
www.joyzabala.com



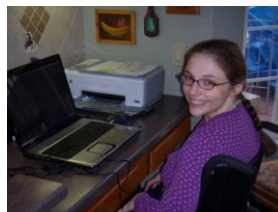
## Skills of the Individual

Motor

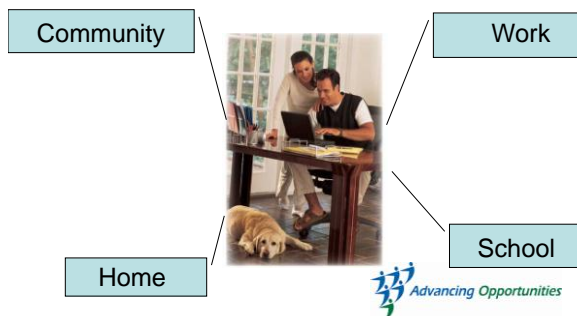
Cognition/Memory/  
Attitude

Language/Processing

Sensory



## Environments



## Tasks

Office Tasks- Phone, Files

Retail- Product Handling, Inventory

Food Service- Food Preparation, Cleanup

Manufacturing- Machine Operation

All Jobs- Organization, Reading, Writing



AT FOR PHYSICAL/ SENSORY  
DISABILITIES



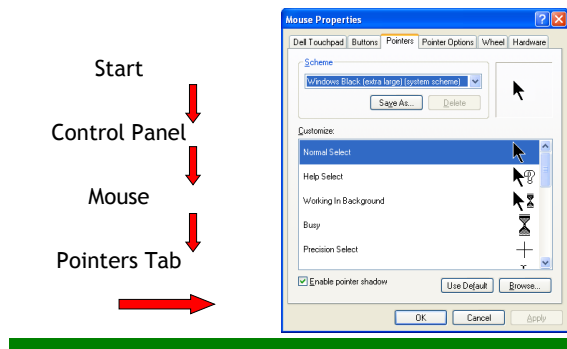
ACCESSIBILITY BUILT INTO  
EVERY COMPUTER



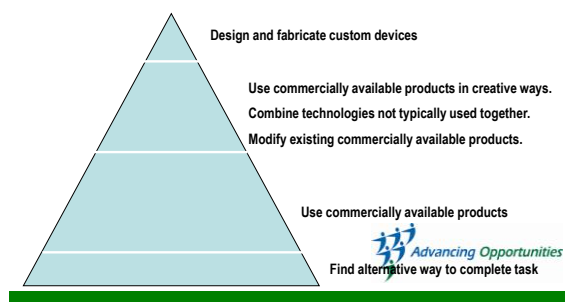
## Accessibility Options - Magnifier



## Control Panel - Mouse Pointer



## Accommodation Hierarchy: Customized Accommodations



## GUIDANCE: Problem

- Difficulty w/ fine motor
  - some people w/ cog. impairments have difficulty w/ fine motor control
- Find it hard to orient parts correctly
  - memory problems
  - visual perception



## GUIDANCE: Solutions

- Fixture that only allows parts to fit one way
- Placement Cue: depending on level of cog. Impairment
- Color Coding of Parts
  - last two provide a level of cueing that supports the consumer's abilities

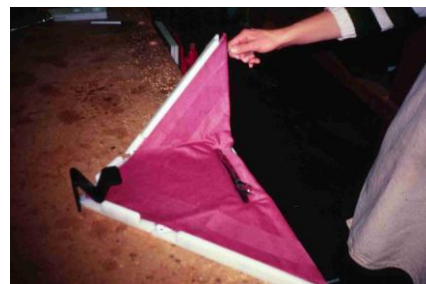


## Placement Cue:





rtunities



rtunities

## Person: Joel

- Good social skills
- Has tried different jobs
- Can do simple assembly
- Fairly good fine motor control
- Difficulty with orientation of parts



## Environment

- Manufacturing floor
- Has own workspace; can customize
- Maintenance crew available for modifications



## Task

- Assembly of Tape Gun
- Many parts
- Not obvious which way parts are inserted
- Possible to assemble with parts turned



## Accommodation

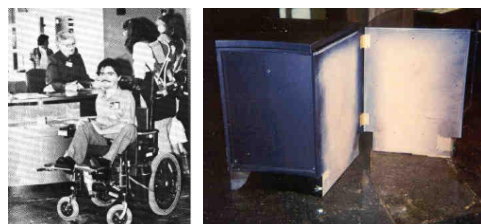
- Fixture that holds parts together
  - shaped to this particular tape gun
- Cut-outs to accept each new piece
  - if piece is not oriented correctly, it doesn't fit in its hole



## Use commercially available products



## Use commercially available products in creative ways



 Advancing Opportunities

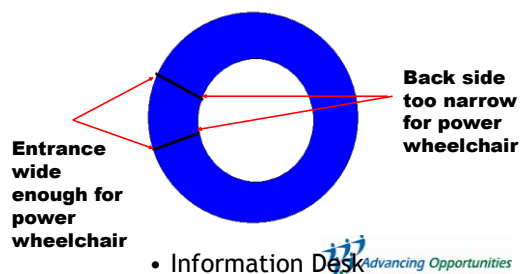
## Case Studies - Eddie

- Worked at Aquarium
- Job responsibility:  
He is a "greeter"; he welcomes visitors and provides directions to exhibits.



 Advancing Opportunities

## Case Studies - Eddie The problem....




 Advancing Opportunities

## Case Studies - Eddie The solution...



- Information Desk

 Advancing Opportunities

## Modified Equipment

- Burger King
- Job responsibility:  
making salads throughout the day



See it! Kathy's story

 Advancing Opportunities

## Design and fabricate custom devices



Advancing Opportunities

## AT Consideration



- Discuss your job seekers
- Consideration Guide
  - Voc. Goal
  - Strength / Difficulties
  - Tasks
- Choose spokesperson



Advancing Opportunities

## TIP: How to identify possible accommodations?

Know what's possible



Know your resources

[www.jobdev.wikispaces.com](http://www.jobdev.wikispaces.com)

Advancing Opportunities

## Resources

[assistivetechnologycenter.org](http://assistivetechnologycenter.org)

- Employing for Success newsletter
- AT in Action case studies
- Tools of the Trade blog  
[assistivetechnj.blogspot.com](http://assistivetechnj.blogspot.com)

Advancing Opportunities

## Resources

### Technology Lending Center

- [www.assistivetechnologycenter.org](http://www.assistivetechnologycenter.org), click on "Technology Lending Center"
- Try before you buy

Advancing Opportunities

## Resources

### Job Accommodations Network

[www.askjan.org](http://www.askjan.org)

- SOAR: Searchable Online Accommodations Resource

Advancing Opportunities

## Making a Referral

If you serve the person through **DVR**

- Ask their DVR counselor to contact us

If you serve the person through **DDD**

- Ask their DDD case manager to contact us

888-322-1918

[assistivetechologycenter.org](http://assistivetechologycenter.org)



## TIP: How to talk to funders about Assistive Technology

- Start with the need or goal, not the technology
- Don't ask for a specific piece of equipment
- Ask to investigate further, to try things out and find what works

