The Ecology of Technology:
Or why an app list is only the beginning

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Objectives

- Differentiate between technology as an assistive device, a practitioner tool, and a virtual context.
- Articulate the benefits of using technology in both adaptive/compensatory and restorative approaches.
- Cite examples of technology being used to optimize occupational performance and facilitate therapeutic goals.

For this Presentation

- The Ecology of Technology is the study of:
  - The distribution and abundance of technologies,
  - The interaction between technologies,
  - The interaction between technologies and their environment,
  - The structure and function of virtual systems.

- The purpose of the Ecology of Technology is to:
  - Provide knowledge about the way technology works
  - Provide evidence on the interdependence between the technological world and people.

Why App Lists Aren't Enough

- Focus on quantity of tools instead of quality of intervention
- Quickly outdated
- Usually only consider advertised uses, not alternative or “off label” uses
- Perpetuate tunnel vision (when all you have is a hammer....)
- Encourage a “tool first” approach
Technical vs Ecological Thinking

Technical
- Emphasis on parts
- Analyze the details of each part
- Problems taken apart for understanding
- Hierarchies and structure
- Product oriented
- Connect for immediate purpose
- Task Analysis

Ecological
- Emphasis on context
- Analyze patterns & connections
- Understand problems in context of greater whole
- Multilevel interdependence
- Context oriented
- Explore for better understanding
- Occupational Profile

Understanding the Jargon
(And why it matters)
Technology

“People use technology only to mean digital technology. Technology is actually everything we make.”

Margaret Atwood

- A huge term used by many disciplines
- Knowledge transfer can be limited
- No universal language or terminology

Important Realms of Exploration

- Assistive Technology
- Rehabilitative Technology
- Learning & Educational Technology

Assistive Technologies

Any device or system to increase, maintain, or improve function

Adaptive Tech
- Specifically designed or adapted

Everyday Tech
- Intended for general use (Mainstream)

Rehabilitative Technologies

Used during the rehabilitation process to help people recover function after injury or illness.

Examples
- Functional e-stim (e.g. Bioness)
- Interactive Metronome
- Biofeedback systems
- Gait trainers
- Splints

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Learning Technologies
Used to support learning, teaching, and assessment.

Examples
• Interactive whiteboards
• Note-taking tools
• Digital flashcards
• Video modeling
• Webinars

Educational Tech
• Primary Goal: Technological literacy for everyone

Instructional Tech
• Primary Goal: To enhance the teaching and learning process

Assistive Technologies
• Compensatory
  • Seeks to minimize impact of disability
  • Increase, maintain, or improve function

Rehabilitative Technologies
• Restorative
  • Seeks to help client regain lost skills
  • Recover after injury or illness

Learning Technologies
• Facilitate digital literacy and support the learning process

Putting it all together
Main Purpose
Why does any of this matter?

- The way we VIEW technology influences the way we USE technology
- There are many resources for tech “parts” but limited trainings on how to take an ecological view of technology as a whole system.

How does all this connect to me?

In the therapeutic world most of the focus is on specific devices, apps, strategies for the client. However, technology can also be useful to the practitioner. Both the practitioner and the client participate in a virtual context.

Up Next

- Technology as a Practitioner Tool
- Technology as a Client Tool
- The Virtual Context

Technology as a Practitioner Tool

Tips for using tech to your advantage
Password Management

Creating Passwords

- Wizard of Oz
  - ?g&pOzem11
    - Question (?) for the great and powerful (g&p)
      Oz in the emerald (em) city (11)
- Space System
  - plnts@$UN*
  - Eis3rdfr0m*

Web of Trust

Search Strategies

- Brainstorm search terms
- Use refinement tools ", -, OR (see handout)
- Use images and videos
- Consider similar devices or products with similar purposes
- Open multiple tabs

Search Strategies

Google "assistive technology" OR "adaptive equipment" -AAC
Google Search Tools

Google search strategies

Saving your Findings

In Firefox, right click on a tab to access the “Bookmark All Tabs” option

App Search Tips

- Try third party sites like blogs, Pinterest, AOTA
- Try specialized search engines
- Get an app for finding apps!
Printing Tools

Get Information Off the Internet is like taking a drink from a fire hydrant.

Mitchell Kapor

Image Credit: Mike Segar/Landov http://www.peoplepets.com/people/pets/article/lt_20512310_00.html

Content Curation

- “The process of sorting through the vast amounts of content on the web and presenting it in a meaningful and organized way around a specific theme.”

- “A content curator cherry picks the best content that is important and relevant to share with their community.”

From Beth Kanter’s Content Curation Primer
http://www.bethkanter.org/content-curation-101/#sthash.1qUvheu5.dpuf

Curation And Aggregation Examples

- Newsletters
- Catalogues
- Magazines
- Blogs
- RSS Feeds
- YouTube
- Facebook
- Linkedin
- Twitter

Digital Curation Toolbox
Other Curation and Aggregation Resources

- Scoop.it!
- Feedly
- Symbaloo
- Netvibes

Digital Curation in OT: AOTA 2013 Tech Day

“I think that technology is always invented for historical reasons, to solve a historical problem. But they very soon reveal themselves to be capable of doing things that aren’t historical that nobody had ever thought of doing before.”

Brian Eno
Health Tracking Apps

Track & Share

My Medical

Medication Management

Self-Regulating Technologies

Breathing or Meditation
(Breathe2Relax)

Self-Regulating Technologies

Personal Strategies
(The Shredder)

Sensory-Based
(Fluid)

Self-Regulating Technologies

MedMinder ($39/mo)

Med-Q Pillbox ($50)
Technologies for the home

- LEVO G2 Deluxe iPad Floor Stand
- Philips Hf3470 Wake-up Light
- Etekcity 5 Pack Self Learning Remote Control Outlets
- SentrySafe X055 Security Safe

Livescribe Pen

3 Components of Independent Use

- **Initiation**
  - User requests or retrieves the device when it is required.
  - User displays awareness of the device's purpose.

- **Operation**
  - User is able to perform basic device functions.
  - User displays increasing skill levels.

- **Management**
  - User is tasked with caring for the device.
  - User accepts responsibility and ownership.

Online Tutorials

- **Everyday Life**
  - ATM
  - Bank
  - Bus Map
  - Cash Back
  - Check Your Messages
  - Classifiers
  - Compare Labels
  - Count Change
  - Count Fills
  -预料
  - Fire Plan
  - Food Labels
  - Grill Safety
  - Grocery List
  - Grocery Shelves

- **Social Media**
  - Apps
  - Beyond Email
  - Blog Basics
  - Digital Lifestyle
  - Facebook 101
  - Google
  - Information Savvy
  - Internet Basics
  - Networking Basics
  - Password 101
  - Skype
  - Twitter 101

- **Career**
  - Career Planning and Salary
  - CareerHubs
  - Cover Letters
  - Gain Job Skills
  - Interviewing Skills
  - Job Application
  - Job Search
  - Networking
  - Resume Writing
  - Salary Basics
  - Write a Resume
  - Workplace Basics

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The Virtual Context

- Individuals participate in many different virtual contexts.
- The virtual context can either facilitate or constrain occupational performance.
- It is our job to understand the virtual contexts our clients will encounter.
- We must be knowledgeable in ways to adapt these environments and how to teach the requisite skills needed for participation.


Online Shopping

Readability

Readability Page
Create Tutorials in Natural Environment

Virtual Rehabilitation

Accessible Wallpaper

Virtual Reality for Rehabilitation

- Control environment
- Customize interface
- Safely make mistakes
- Errorless learning through cues
- Immediate support and feedback
- Tasks can be repeated
- Learning can take place in stages
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SeeMe Virtual Rehab System

Augmented Reality for Rehabilitation

Word Lens

Find Your Car with AR

Sorting Game Concept

Matching Game Concept

Mystic Isle by USC

Telerehabilitation

The OT’s Role in Shaping Technology

• Be a Beta tester
  • Don’t be afraid to ASK!
  • Highlight your unique knowledge base and client access
• Gather and share feedback
• Partner with other organizations
• Become a content curator
• Advocate for access (for both clients and practitioners)

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http://www.meditouch.co.il/en

Image via http://www.wifemomsuperswoman.com
The Ecology of Technology

Conferences

- ATiA Assistive Technology Industry Association
- RESNA Rehabilitation Engineering and Assistive Technology Society of North America
- Closing The Gap
- ISTE Atlanta 2014

Highlights

- Ecological perspective
- Assistive, rehabilitative, and learning technologies
- Compensatory/adaptive vs rehabilitative/restorative approaches
- Tools for the practitioner and client
- Initiation, operation, and management of tools
- Searching tips and content curation
- Digitalizing “real world” tools vs novel uses
- Virtual contexts and virtual rehabilitation

You can view the full PowerPoint file and other resources by visiting this site:

http://tinyurl.com/ecology-of-tech

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