Transformation through Disruption: Technology solutions and their role in systems change and employment outcomes.

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YES! Center
Exploring the Intersection of Technology and Employment Systems Change for Youth with Disabilities Webinar Series
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The mission of the Coleman Institute for Cognitive Disabilities is to catalyze and integrate advances in technology to promote a meaningful quality of life for people with cognitive disabilities and their families.
Learning Objectives

Attendees will describe the opportunities provided by the current economic, and socio-political climate

Attendees will discover innovative and disruptive technologies that encourage autonomy, self-efficacy, resilience, and enhance employment opportunities for people with disabilities

Attendees will reflect on the alignment between Technology First and Employment First systems-change efforts and how to make advancements in their own states
The Age of Disruption
The Age of Uncertainty – National Crises

01 Public Health - Pandemic
02 Economic Recession
03 Civil Unrest and Social Injustice
04 Climate Change and Natural Disasters
05 Foreign Conflict
06 Mistrust of Technology
Impact on Transition-Age Youth

- Change in routines
- Virtual learning and continuity of learning
- Information access
- Cultural impacts
- Loss of natural supports
- Loss of security and safety
- Economic insecurity
- Health and wellness
Innovation
Born Out of Crisis

- 1943
- Two sons serving in the navy in World War II
- Worked at the Green River Ordnance Plant in Illinois packing ammunition boxes
- **Problem:** Wanted to save soldier’s lives by fixing the weak tape tabs covered in waterproof wax used to open ammunition boxes
Solution: Duct Tape
Crisis Drives Innovation

- Problem-solving is at the heart
- Uniting around a purpose
- Seeing the system differently
- Creating a bias toward action
Types of Vulnerability that Open the Door To Disruption...

1. Waste – Where there is unlocked value in an underused asset

2. Redundancy – Layers of superfluous roles and processes

3. Complexity – When there are ways to simplify complex and frustrating customer experiences

4. Limited Access – When products and services are out of reach for many or don’t require full ownership

5. Broken Trust – When trust in institutions has failed

Rachel Botsman
Research Focus: How technology is transforming the social glue of society, trust between people.
Processes or Systems Open to Disruption

- Formal educational systems
  - Transition process – coordination of services and supports
- Opportunities for self-direction
- Employment services and supports
  - Pre-Employment Transition Services (Pre-ETS)
  - Skill development
- Resource allocations – blended and flexible
- Technology related programs and services
- Healthcare
- Federal programs for people with disabilities
Who Will Flourish?

- Nimble organizations, systems, and services
- Programs and services that adapt and capitalize on shifting landscapes
- Technology adept programs and services
- Non-traditional workers who demonstrate 21st century job skills
Valued Job Skills

- Time Management
- Engineers

- Agile - Transferable Skills

- Cultural Competency

- Social Capital

- Emotional Intelligence

- Data Management Skills

- Human Ingenuity and Strategy

- Digital Competence and Technology Related Skills
Why is it important that we talk about technology now?

Because the digital transformation that is occurring before our very eyes has the potential to further marginalize the disability community which will undeniably impacting people’s health and well-being, or it could activate the innovators of tomorrow causing education, public services, and job markets to pivot to equity and quality.
Innovative and Emerging Technology Solutions for Transition-Age Youth
The ubiquity of technology is changing the world around us and how we must *interact, survive*, and *thrive* within that world.
Digital and Technology Gaps Widening for People with Disabilities

- 23% of people with disabilities say they never go online (Pew Research Center, 2017)
- People with disabilities have lower technology adoption rates
- 39% of people with IDD had access to a smartphone (FINDS, 2018)
- 39% of people with disabilities say they can use the internet very well (Pew Research Center, 2016)
- Exacerbated by COVID-19
Barriers to Technology

- Equal opportunity – gate keepers (teachers, family members, providers, etc.)
- Lack of universal design
- Digital literacy and technical skills
- Knowledge translation
- Social context
- Systemic barriers
- Failure to address “useworthiness” alongside usability
- Economic barriers
○ Assistive Technology
  ○ Smart Technology
○ Applied Cognitive Technology
  ○ Health Technology
○ Enabling Technology

○ Accessible Technology
○ Mainstream Technology
○ Connected Technology
○ Technology Supports
○ Educational Technology
Meme

I HAVE TERRIBLE NEWS FOR YOU

YOU SUFFER FROM SOS (SHINY-OBJECT-SYNDROME)
Technology as a Bridge and Accelerator

Environment

Personal Competence

Tech Solutions

Environmental Fit
Process for Identifying Technology Solutions

1. Help Youth to Set a Goal
2. Identify the Youth’s Personal Strengths/Assets That Will Help Them Achieve Their Goal
3. Identify Challenges or Environmental Demands That May Create Barriers to Goal Achievement
4. Search for Technology Solutions to Fill the Gap
Considerations When Identifying Technology Solutions

- Person-Centered: Self-Directed utilizing techniques of feature matching
- Outcome-Driven: Helps the individual accomplish their goals
- Universally Designed: Procurement and investigation of accessible solutions
- Trial: If given the opportunity trial products first

* If specialized equipment work with a certified AT Specialist or certified medical professional
Collective Family Empowerment

- Family members are critical to producing successful outcomes
- Understand cultural, linguistic, behavioral preferences
- Consider the entire family unit (siblings, cousins, grandparents)
- Families are auxiliary markets
- Over 70% of people with IDD live their adult lives with family members
- Consider family supports
Principles of Universal Design for Procurement

- **Equitable Use**: The design is useful and marketable to people with diverse abilities.

- **Flexibility in Use**: The design accommodates a wide range of individual preferences and abilities.

- **Simple and Intuitive Use**: Use of the design is easy to understand, regardless of the user’s experience, knowledge, language skills, or current concentration level.

- **Perceptible Information**: The design communicates necessary information effectively to the user, regardless of ambient conditions to the user’s sensory abilities.

- **Tolerance for Error**: The design minimizes hazards and the adverse consequences of accidental or unintended actions.

- **Low Physical Effort**: The design can be used efficiently and comfortably and with a minimum of fatigue.

- **Size and Space for Approach and Use**: Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user’s body size, posture, or mobility.

**United States Access Board**
Instead of identifying if technology solutions were addressed in planning, report why it is **not** being used to achieve student goals.
Jobs and Employment Technologies

Communication Technologies
- Text-to-Speech
- Speech-to-Text
- Augmentative or Alternative Communication Systems (AAC)

Virtual Engagement
- Live Captioning and Transcription Services paramount
- Fable Accessibility
  Crowd testing cites Zoom as most accessible

Task Management Systems
- American Federation for the Blind lists accessible task management systems
  - Todoist
  - Any.do
  - Wunderlist
  - TickTick

Real-Time Assistance
- Dial-in Services - AIRA
- Augmented Reality Training and Assistance – Boeing

Learning Management Systems
- Learning management systems like CANVAS and Blackboard
- Universal Design
- Online Content Inspection Tool (UCF)
Jobs and Employment Technologies
Continued

Supportive Software
- Writing Supports – Grammarly
- QuickBooks built with accessibility guidelines

Apps
- Serene for productivity
- Calendly for scheduling
- Toggl for time-tracking

Tools for Work Discovery
- Virtual Job Shadowing
- Mind Mapping – Coggle

Tools for Job Applications
- Virtual Reality Job Interviews – Kessler Foundation
- Augmented Reality Multimedia Portfolio

Built-in Accessibility Features
- Look at mainstream tools for accessibility features
- Closed Captioning
- Text-to-Speech
- Many More
Postsecondary Education and Vocational Technologies

Inclusive Colleges
- Think College!
- Cyber.org
- Microsoft Learning

Technology Portfolio
- List of Technologies Used
- About Me Story App
- Personal Webpage

Skill Development
- YouTube Videos
- Mixed-Reality
- Online Courses
- Credential Stuffing

Information Access
- Easy Reading
- Content Clarifier
- IBM
- Text Simplification
- Bookshare by Benetech

Self-Advocacy
- Self-Determination
- Self-Advocacy
- Virtual Meetings (SFO CO)
- Social Media
- Communication First
Technology Supports and Solutions

**Accessible Technology**
- Accessible web
- Colorado Emergency Response Desktop Suite – Coleman Institute Project

**Peer Technology Alliance**
- TIP Squad CT
- Technology Testing
- AccessCSforAll
  - Scratch

**Digital Literacy**
- Digital Citizenship
- Personal Data Management
- Common Sense Education
- iKeep Safe

**Financial Technology**
- Budgeting
- Digital Payments
- Clarity Money

**Technology Exploration**
- Bridging Apps
- Cybersecurity
- Gaming
- Robotics
Consider Exploring and Teaching About Disruptive Technologies

○ Ubiquitous AI
○ Intelligent spaces
○ Wearables
○ Digitally extended realities
○ Voice economy
○ Robots and cobots
Coleman Institute Affiliated Projects

- Colorado Emergency Response Desktop
- Contextually Aware Haptic Communication Systems
- Accessible Data Visual Analytics
- Accessible Manuals for Technology
- Augmented Reality and Daily Living Skills
Coleman Institute Affiliated Projects Continued

- Technology Innovations for People (TIP Squad) Peer-Technology Research and Training
- Declaration Champions
- Multimedia Portfolios – Video Resume
- Technology First
Complementary Systems-Change Efforts
Champion the Right to Technology

- Rights of People with Cognitive Disabilities to Technology and Information Access
- Global Cooperation on Assistive Health Technology, - research and innovation World Health Organization
- Bologna Declaration AAATE
Technology First began as a movement but has transformed to a “framework for systems change where technology is considered first in the discussion of support options available to individuals and families through person-centered approaches to promote meaningful participation, social inclusion, self-determination and quality of life”

- Tanis, 2019
Why are States Investing in Technology First?

- Promotes autonomy, self-direction, and community integration
- Addresses the direct care professional workforce shortages
- Drives more efficient and effective practices – cost efficiencies
- Addresses the need to embrace innovative solutions
Elements of a Technology First Initiative

1. Set of Core Values
2. Implementation Team
3. Resource Allocation
4. Communication
5. Disruption in the Status Quo Through Innovation
6. Leverage Through Collaborations
7. Capacity Building
8. Fidelity and Data Driven Decision-Making
### States Engaged in Technology Consortia

- Ohio*
- Missouri*
- Minnesota*
- Colorado
- Connecticut
- Delaware
- Washington, DC
- Oklahoma
- Alaska
- Hawaii
- Indiana
- New York
- Tennessee
- Pennsylvania
- Washington
- Wisconsin
- North Carolina

* Using Technology First language
NASDDDS Technology Report
Complementing Efforts

Person First
Person at the center and driving decisions and activities

Technology First
Technology as humanity’s equalizer to achieve outcomes

Employment First
Preferred outcome
Alignment of Systems-Change Efforts: Technology First and Employment First

- Emphasize person-centered approaches
- Complementary not competing initiatives
- Technology skill adoption can be seen in all phases of the employment lifecycle and augment outcomes
- Technology First helps to reimagine the 21st century employer and employee
- Outcome-driven implementation practices
- Rights-based to fulfill the goals of the ADA
How to Advance or Initiate Efforts in Your State

- Join or initiate systems-change efforts (Technology First or Employment First)
- Establish advisory councils to guide and drive implementation
- Leverage through collaborations
- Consider causal relationships when modernizing policies and collecting data
- Look for opportunities to combine activities (i.e. pilot programs on technology in employment)
- Learn from partners in other states
- Look to greater efficiencies and sustainability
- Build a culture of innovation
Lack of Access Will Lead to Segregation and Isolation

Walls of Isolation and Segregation

Image Source: https://www.fieldservicenews.com/blog/barriers-slowing-digital-transformation
Thank You!

Contact Information

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