Enhancing Quality of Life with Person-Centered Cognitive Technologies

Daniel K. Davies
Founder and President
Person-centered Cognitive Technologies

Cognitively Accessible Technologies Used Directly by Individuals with IDD At Home, School, Work and in the Community for Smart Living
Needs Based Accessible Solutions for Everyday Activities

Access to Facebook

Activities of Daily Living

Personal Scheduling
Background

• Began Research Specifically on Using Technology for Individuals with Intellectual Disabilities in 1991 (the same year Laconia closed)

• Founded AbleLink in 1997 to Focus Exclusively on Cognitive Technology R & D

• Our Mission
  Research, Develop, and Deliver Cognitive Technology addressing the Specific Needs of Individuals with Cognitive Disabilities and Seniors Aging in Place
AbleLink’s Cognitive Technology Research and Development

Developing Innovative Technologies for those with Cognitive Needs

• Conducted over 75 Research Projects Focused on Technology for:
  Intellectual and Developmental Disabilities
  Traumatic Brain Injury
  Seniors Experiencing Cognitive Decline

• Funding Organizations have included:

- NiDILRR
- Institute of Education Sciences (IES)
- DARPA
- National Institutes of Health

Accessible Transportation Technologies Research Initiative (ATTRI)
Early R & D of Cognitive Support Technology

Karl Kreklow: Friend and Research Participant from back in 1991

Karl I got it
<table>
<thead>
<tr>
<th>1991</th>
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<tbody>
<tr>
<td>Brand of Computer</td>
<td>IBM</td>
</tr>
<tr>
<td>Type of Computer</td>
<td></td>
</tr>
<tr>
<td>Cell Phone</td>
<td></td>
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<tr>
<td>News Source</td>
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<td>Sending Messages</td>
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<tr>
<td>Listening to Music</td>
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<td>Watching Video</td>
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Remember 1991?
“Living the Smart Life” – Coleman Conference 2008

Living the Smart Life DVD

"Living the Smart Life" is a story which demonstrates AbleLink’s vision for how technology can make a difference in the lives of people with intellectual and developmental disabilities. As you will see in the movie, people with cognitive disabilities can benefit from the same mainstream technologies that everyone uses to manage and enjoy life when provided with the appropriate access. Greater independence and self-determination are very realistic outcomes for a population that, to this point, has benefited very minimally from other assistive technologies.

https://www.youtube.com/watch?v=TuHLj2U0SMQ
Technology: No Longer Optional for Full Access to Society
The Rights of People with Cognitive Disabilities to Technology and Information Access

13th Annual Coleman Institute Conference - October 2, 2013

Coleman Institute for Cognitive Disabilities
UNIVERSITY OF COLORADO
Boulder | Colorado Springs | Denver | Anschutz Medical Campus
Leveling the Playing Field: Improving Technology Access and Design for People with Intellectual Disabilities
Report to the President – October 2015
A group of states with the shared belief in the promise of enabling technologies as an essential support option for people with intellectual and developmental disabilities.

States are at various stages in the development and implementation of enabling technologies.

Meetings are intended for asking questions, and sharing information, best practices, ideas, successes and challenges.

Launched on January 17, 2019, these quarterly meetings have covered the status of states’ technology initiatives, the critical role of marketing and education, what enabling technology is and isn’t, and soon, overcoming rural challenges.

For more information, Contact Harold Sloves at TN-DIDD: Harold.Sloves@tn.gov
Cognitive Technologies Meet **Needs** Across Spectrum of Life

- Accessible Surveys for Promoting Self-Expression with **ATLAS**
- Personal GPS for Enabling Independent Bus Travel with **WayFinder**
- Visual & Audio Task and Personal Scheduling Support with **Smart Living Mobile Suite**
- Access to the Web and the World with **Smart Living Suite**

**“Having My Voice Heard”**

**“Accessing My Community”**

**“Knowing When and How to …”**

**“Accessing My Everyday Technologies”**
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AbleLink
SmartLiving Technologies
Enabling Technology Project

Enabling Tech Providers

Core Services
Emory Valley Center
Madison Haywood
New Horizons
Orange Grove Center
Prospect
Sertoma
SRVS
St. John’s
ATLAS: Cognitively Accessible Tests and Surveys

Self-directed, survey tools, such as consumer satisfaction surveys, using multi-modal presentation and accessible design can increase independence and reduce staff time interviewing and entering/aggregating data.
Statewide Implementation of Web-Based Self-Directed Satisfaction Surveys with ATLAS

Enabling Technology Project Survey Portal

My Views About My Home
This survey includes questions pertaining to general satisfaction with respect to the residential living environment, satisfaction with roommates, satisfaction with staff, and perceptions of health, safety, and opportunities for personal choice.
Launch Survey

My Views About My Work
This survey includes questions pertaining to general work satisfaction, work conditions, pay, interpersonal relations with co-workers, and satisfaction with supervisors and job coaches.
Launch Survey

My Views About My Community
This survey investigates user perspectives in a variety of areas including frequency of community access, community activities, choice, relationships, staff, safety, community interactions and transportation options.
Launch Survey

Training Survey

Data Reports Site
Do you have enough help from your Job Coach?

- Yes
- Sometimes
- No
# ATLAS: Cloud-based Data Collection and Reporting

**Tennessee Department of Intellectual & Developmental Disabilities**

**Perception of Satisfaction and Service**


**Overall Score:** 85%

- **Total Surveys Sampled:** 10
- **Total Points Scored:** 153 (160 Points)
- **Date of Report:** May 31st 2019, 8:26 pm

## Self-Report Perspective I: Satisfaction with Life Activity and Environments

This perspective focuses on a broad cross section of factors that can impact satisfaction with current employment situation and supports. It includes perceptions of overall job satisfaction, hours worked, pay, employment supports and co-worker relations.

**Score:** 82%

- **Points:** 130/160 Points

## Self-Report Perspective II: Choice-Making Opportunities Impacting Self-Determination

This perspective includes responses to questions concerning opportunities to make decisions or participate in the process of making work-related choices. It involves the degree of participation in job selection, choice related to job coach selection, and workplace problem resolution.

**Score:** 78%

- **Points:** 36/50 Points

## Self-Report Perspective III: Staff Involvement and Satisfaction with Support Provided by Job Coach

This perspective involves ratings directly related to staff supports and perceived level of responsiveness by staff. It includes items related to satisfaction with aspects of job placement, problem resolution and job coaching services.

**Score:** 99%

- **Points:** 44/45 Points
ATLAS VantagePoint: **Self-Directed Satisfaction Surveys**
ATLAS: Cloud-based Data Collection and Reporting

AbleLink Technologies
My Views About My Home - Overall Results

2. Who got to choose where you live?

- Someone else chose where I live (28%)
- I chose where I live (42%)
- I am not sure (14%)
- I chose where I live with some with help from others (14%)
ATLAS: Cloud-based Data Collection and Reporting

AbleLink Technologies
My Views About My Home - Perception of Satisfaction and Service

Overall Score: 88%

Respondent: Sample Home Survey
Completed: 01/11/16 - 10:36 AM
ID: 2016011112034376

Perspective I. Satisfaction with Life Activity and Environments
This perspective focuses on a broad cross section of factors that can impact happiness and overall satisfaction with the home living environment, including general activities, room or house mates, staff supports, safety, privacy, nutrition and freedom of choice.

Perspective II. Interpersonal and Social Connectedness
This perspective includes survey questions that relate specifically to interpersonal relationships with housemates, friends and neighbors, as well as social interactions with residential support staff. Questions affecting this Perspective relate to whether the individual feels respected and treated well by the individuals they come in contact with on a regular basis in the residential environment.

Perspective III. Staff Involvement and Quality of Services Provided
This perspective specifically focuses on supports that are provided to individuals in residential settings from agency staff, staff interactions and perceived responsiveness of staff, help provided by staff towards achieving personal goals, perceptions of control in relation to staff, and freedom to communicate with staff regarding problems or concerns.
ATLAS Example: Health Care Visit Satisfaction Survey
Having My Voice Heard!
Cognitive Technologies Meet **Needs** Across Spectrum of Life

- **“Having My Voice Heard”**
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- **Personal GPS for Enabling Independent Bus Travel with WayFinder**
ATTRI – THE COMPLETE TRIP
Accessible Transportation Technologies Research Initiative (ATTRI)

1. Plan and Book a Trip
Andy uses a pre-trip concierge application to plan and book his trip from the doctor’s office to the coffee shop.

2. Travel to Transit Station
An automated shuttle (rideshare service) is dispatched to take Andy to the transit station based on his booked trip. Once there, an assistive robot helps Andy to his bus platform.

3. Ride the Bus
While on the bus, Andy receives direction on when to pull the Stop Request cord from his wayfinding and navigation application. After he departs the bus, the application provides Andy with turn-by-turn walking directions to the coffee shop.

4. Cross the Street
As Andy approaches an intersection, his safe intersection crossing application communicates with the traffic signal to ensure sufficient time for him to safely cross the street, and notifies him when it is safe to begin crossing. The application also communicates with nearby cars to notify them of Andy’s presence in the intersection.

5. Arrival at Destination
Andy safely arrives at his destination, while the pre-trip concierge application plans his return trip home.

Specifically Considering the Unique Needs of Individuals with Cognitive Disabilities and others with Special Needs
Cognitive Technologies for Community Access

**WayFinder:** An accessible Smart Phone program for providing multimedia prompts to individuals with cognitive disabilities for navigating public transit systems.
AbleLink’s Projects: Specifically Considering the Unique Needs of Individuals with Cognitive Disabilities and others with Special Needs

A. Accessible Assessment
B. Self-Directed Training
C. Trip Virtualization
D. Trip Execution App

G: SMART Standard (JSON)
H: SMART Route Builder
I: SMART Route Library

F. WayFinder App
WayFinder Supports Riding the Bus and Accessing the Community Independently
CLOUD-BASED SMART ROUTE LIBRARY
WayFinder Ecosystem for Agencies to Provide Travel Support

SMART Route Builder & WayFinder Route Builder

SMART Route Library

Cloud-based Library with no storage limitations

WayFinder Travel App
Focus – Transition Independent Use of Transit System
Travel Instructions Provided along the Way

“Your stop is next. It’s time to pull the cord to tell the driver to stop”
Traveler Initiated Messages
Notifications and Real-Time Location Updates for Providing Peace of Mind to Family and Caregivers
SMART Columbus Project and Accessible Travel

12 Month Implementation of WayFinder in Columbus Metro Area
Beginning in April 2019
ATTRI Research on Trip Planning and Trip Execution Tools

Technology to Support Transportation Needs Assessment, Training, and Pre-Trip Planning by People with Intellectual Disability

Smart Columbus Project and WayFinder Featured in Spring 2019 Future of Transportation Issue

https://www.popsci.com/last-mile-public-transit
A vehicle/pedestrian accident left Laura too scared to take the bus independently. After a few weeks of pedestrian safety training and re-acclimation to independent travel, she now takes the bus to/from work three times a week.
When he started a Day Hab program, William wanted to learn the bus system rather than rely on staff or paratransit. Thanks to SMART Travel, he knows how to get to/from work and is so excited that he shows up on his days off!
ARCA’s Smart Travel Program – “Wildly Successful”

“The STP program is wildly successful. We trained two groups of ten individuals in the first year of collaborations with our governmental partners. The first group increased their public rides by 110% and the second group increased their rides by 84%.”

https://www.arcaopeningdoors.org/services/smart-living-program/
Designed to help people maximize their independence.

ARCA's SMART Living program teaches the skills necessary to maximize independence using assistive technology. Our program utilizes a person-centered approach customized to each person's needs, enhancing quality of life through task analysis, scheduling assistance, visual and/or auditory aids, in-home training sessions, field training, GPS programs and more.
Accessing My Community!
Cognitive Technologies Meet Needs Across Spectrum of Life

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- Personal Scheduling and Task Support with the Smart Living Mobile Suite
- Personal GPS for Enabling Independent Bus Travel with WayFinder
- Access to the Web and the World with the Smart Living Desktop Suite

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Accessible Personal Scheduling

[Image of a digital planner interface showing to-do items and activities scheduled for July 2014.]

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AbleLink
Smart Living Technologies
Endeavor 3

- Picture and audio reminders for your day
Endeavor 3

- Picture and audio reminders for your day
Endeavor 3

- Picture and audio reminders for your day

![Endeavor 3 Interface]

- Trip Checklist
- Time to Catch Bus for Work
- Feed your Dog
- Take Your Medicine
- Brush Your Teeth
- Time for Bed
Endeavor 3
– Integrates with WayFinder to Launch Routes
Integrated Self-Directed Prompting

- Take Your Blood Pressure
- The Doctors Visit
- Talking With Your Doctor
Learning Library: Cloud-based Sharable Tasks
Visual Impact 3

- Tasks can be downloaded from a cloud-library or created locally for the individual.
Visual Impact 3

- Easy instructions for doing daily tasks
Visual Impact 3
– Easy instructions for doing daily tasks
Roses for Autism - Story of the Farm

Packaging Farmer’s Market Roses

Weeding Roses
GET READY!
1. Make sure area is dry
2. Get rubber bands
3. Collect two buckets
Trinity supports people with disabilities to live more full and abundant lives.

Supported Employment
Helping individuals with disabilities identify their strengths

Learn how you can make a difference
Knowing When and How to ...!
Cognitive Technologies Meet Needs Across Spectrum of Life

- Access to the Web and the World with the Smart Living Suite

“Having My Voice Heard”

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Access to the Web and the World with the Smart Living Suite
Smart Living Desktop Suite

Cognitively Accessible Operating System
Email, Web Surfing, Media Playing
Smart Living Desktop: Person-Centered Computer Access Driven by Personal Interests and Needs
Interface Customizability: Accessibility Settings Applied to Each User
Experience life to its fullest
Sarah’s Story

“She uses her Person-Centered Desktop every day to practice relaxation exercises, and read her MPR newsfeed. This helps her cope”
Sarah’s Desktop is Personalized to Meet Her Needs
“It’s been a wonderful gift for her to manage a difficult and stressful situation without relapse into crisis. We are very grateful for this technology and the way it acts to support Sarah. It has improved her quality of life.”  

Hammer DSP
Communication Technology Program
A Friendship Grows

Merakey
Allegheny Valley School
Accessing My Everyday Technologies!

Communication Technology Program
A Friendship Grows

Merakey™
Allegheny Valley School
Living the Smart Life – “The Rusty Video”
Presented a Vision for the Future over a Decade Ago

... the time has come to transform services through person-centered technologies!
How?

• Supporting Education of Awareness of the Potential of Person-Centered Cognitive Technologies

• Encouraging Innovation and Technology Integration in Everyday Services

• Investing in Training for Individuals with IDD and Staff on Cognitive Technologies

• Broadening Medicaid Waivers to all Types of Cognitive Support Technologies

• Recognizing the Importance of Technology Champions, both at the State Level and the Agency Level
Concern for man himself and his fate must always constitute the chief objective of all technological endeavors... in order that the creations of our minds shall be a blessing and not a curse to mankind.

Albert Einstein
Science & Happiness

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