What is Mastery of Assistive Technology? How do we measure it?

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Research Team

Speaker Disclosures: Financial

Georgia Tech Center for Inclusive Design and Innovation

- **Financial Disclosures**
- Dr. Satterfield is a salaried research faculty member at the Center for Inclusive Design and Innovation at the Georgia Institute of Technology. His research is funded by the Administration for Community Living, part of the Department of Health & Human Services, and by The National Institute on Disability Independent Living and Rehabilitation Research (NIDILRR), The Georgia Tech Research Institute (GTRI), as well as through the College of Design and Georgia Tools for Life at GA Tech.
- Dr. Satterfield also is a part-time Assistant Professor, teaching graduate courses at the College of Education at the University of Georgia.

Speaker Disclosures: Non-Financial

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Non-Financial Disclosures

- In addition to his salaried position, Dr. Satterfield serves on the Editorial Boards of the Journal of Assistive Technology and The Journal of Assistive Technology Outcomes & Benefits, and has been an occasional reviewer for these and other peer review journals. He also serves as a member of the Research Committee of the Assistive Technology Industry Association (ATIA).

Learning Objectives

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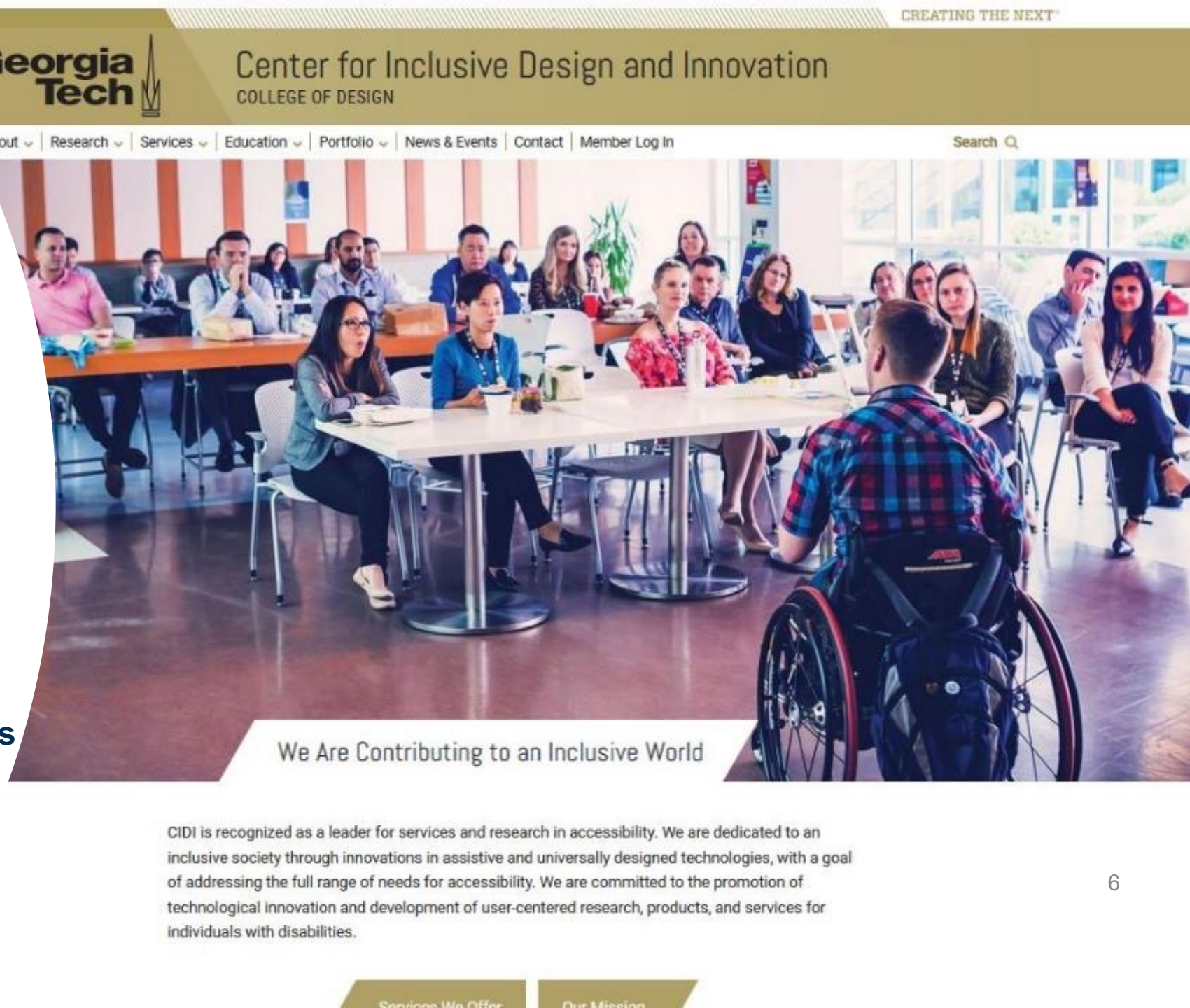
Learning Objectives:

1. Participants will identify at least one unique feature the Delphi Research method.
2. Participants will list at least 3 indicators or predictors of being a “power user” of Assistive Technology.
3. Participants will assess their own level of mastery of AT with regard to some AT tool.

Accessibility Made Smart at CIDI

- Accessibility Consulting – ICT & UX
- Braille Services
- Captioning and Described Audio Services
- Professional E-Text Producers
- Certified Assistive Technology Team

Tools for Life is Celebrating 30 Years of Service this Year!



Tools for Life (TFL) Mission

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Tools for Life (TFL), Georgia's Assistive Technology Act Program, provides Georgians of all ages and disabilities the opportunity to gain access to and acquisition of assistive technology devices and services so they can live, learn, work, and play independently in the communities of their choice.

Research Basis for this Project

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- According to the National Longitudinal Transition Study (NLTS2) - 2012:
  - 99.8% of the students who received AT graduated
  - Only 79.6% of those who did not receive AT graduated.

  - 80.9% of students who received AT attended a post-secondary institution
  - Only 40.1% of students who did not receive AT attended a post-secondary institution.

  - 80% of those who received AT had a paying job after high school
  - Only 50.8% of those who did not receive AT had a paying job.

Garza, N. (2005). Engagement in Postsecondary Education, Work, or Preparation for Work. *After High School: A First Look at the Postschool Experiences of Youth with Disabilities: A Report from the National Longitudinal Transition Study-2 (NLTS2), 1,* 3-1–3-6.

Bouck, E. C. (2016). A National Snapshot of Assistive Technology for Students with Disabilities. *Journal of Special Education Technology, 31*(1), 4–13

Research Basis for this Project(2)

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- According to the AMAC study (Satterfield, 2020):
- Students with high incidence disabilities who achieve mastery of AT while in high school have an advantage as they transition to a post-secondary setting.
- Students who were comfortable and familiar with the AT demonstrated higher levels of performance in their postsecondary settings.
- If teachers and school administrators in K-12 appropriately apply AT in their local setting, students with high incidence disabilities will likely demonstrate:
  - Greater likelihood of graduation
  - Advantages as they transition to college or technical school.

Satterfield, B. (2020). Mastery of Assistive Technology in High School and Post-Secondary Performance. *Assistive Technology Outcomes and Benefits.* Vol. 14, 52-76.

Research Questions

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- What is Mastery of Assistive Technology (AT)?
  - What is AT?
  - What is mastery?
- How do we measure it?

What is Assistive Technology?

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- Assistive Technology (AT) is any item or piece of equipment that is used to increase, maintain or improve the functional capabilities of individuals with disabilities in all aspects of life, including at school, at work, at home and in the community.
- Assistive Technology ranges from no/low/light tech to high tech devices or equipment.

Hypothesis: *the Continuum of AT Use*

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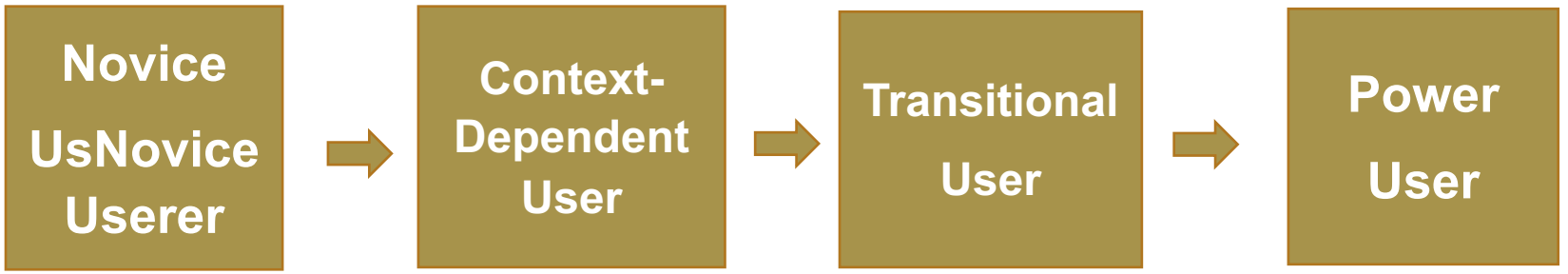
- **Title**: T*echnology, Disability and the Workplace: A Tool for Measuring Mastery of Assistive Technology*
- **Team**: Ben Satterfield, Bruce Walker & Karen Milchus
- The *Continuum of AT Use* (see below) will be examined and refined through a Delphi Study methodology.

- **Objective:** This project will

1) validate a conceptual framework (the Continuum of AT Use) for measuring mastery of assistive technology (AT) by persons with disabilities and
2) will develop a tool for measuring their progress toward mastery of AT.

- **Terms:** 1 Yr; start: July1,2020



Satterfield, B., Walker, B., & Milchus, K. (2021), TECH Report: Continuum of Mastery of AT. SMARTech Repository, Georgia Institute of Technology.
https://smartech.gatech.edu/handle/1853/64914

Methodology: Delphi Method

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- **Methodology**: Delphi method (Dalkey & Helmer, 1963)
- Employs a panel of experts
- Goal to reach consensus as well as to identify and measure contrasting views (Martino, 1993)
- Delphi panels are found to reach more precise and dependable conclusions than focus groups or interviews (Dalkey, 1969; Riggs, 1983)..
- Delphi panel provides comment & feedback on questions or issues
- Multiple rounds (3-4 usually)
- Each round begins with a summary of other panelists comments for panelists to consider.
- Panelists and their comments remain anonymous.
- Rounds continue until panel reaches consensus on the issues before them or when movement toward consensus has ceased.

Methodology: Delphi Panel

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Our Delphi panel:

- Seven members were persons with disabilities:
  - 2 with vision impairments,
  - 2 with learning disabilities,
  - 2 with motoric impairments,
  - 1 with a hearing impairment
  - 1 with a communication disorder
- Diverse affiliations:
  - 7 with academic institutions,
  - 8 were practitioners who guided others to mastery of AT
- This rich diversity and breadth of experience provided access to a range of valuable perspectives and insights

Round 1

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Round 1:

- was used to brainstorm on what came to our panelists minds when they heard/saw the term “power user” of AT.
- Then a framework for thinking of these characteristics—which depicted a continuum of progress from novice to power user across some of these factors—was presented for panel comment and critique.

What do you think …?

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When you think about the concept of a ***"power user of AT"***, what comes to mind?

Findings: "Super Set" of Power User Characteristics

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access to support
problem solving
access to training
flexibility
independence
ingenuity
creativity
technical knowledge
knowledge of AT options/solutions
ability to troubleshoot
use
curiosity
technical skills
motivation
self-awareness
diligence

opportunities to use AT
self-advocacy
technical experience
proactive
connection to AT community
patience
time to experiment and learn
adaptability
access to AT
experience with AT
persistence
practice
connected to AT developers
money and resources

Rounds 2 & 3

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Rounds 2 and 3:

- The characteristics the panel had identified were collected and presented back to the group for comment and prioritization.
- Panelists were given the task of identifying:
  - which were the most important ***indicators*** of someone being a power user.
  - which were the most likely ***predictors*** of someone becoming a power user.
- The panelists used a 5-point Likert scale to indicate how important each characteristic might be as an *indicator* and *predictor*.

Findings

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Rank	Predictor	Mean
1	Opportunity to use AT	4.50
2	Knowledge of AT Options	4.46
3	Problem Solving	4.42
4	Able to T-shoot	4.42
5	Motivation	4.33
6	Persistence	4.25
7	Adaptability	4.21
8	Self-advocacy	4.08
9	Time to Experience & Learn	4.08
10	Access to AT	4.08
11	Flexibility: High Tolerance for error	3.96
12	Technical Knowledge	3.96

Rank	Indicator	Mean
1	Problem Solving	4.42
2	Adaptability	4.29
3	Knowledge of AT Options	4.25
4	Access to AT	4.25
5	Able to Troubleshoot	4.17
6	Opportunity to use AT	4.17
7	Independence of AT Use	4.09
8	Motivation	4.08
9	Flexibility: High Tolerance for error	4.04
10	Technical Knowledge	4.04
11	Improved Effective Use	4.00
12	Self- Advocacy	4.00
13	Time to Experience & Learn	4.00
14	Desire to be Independ	3.96

Analysis at end of Round 3

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At the end of Round 3

- the rankings pointed to a series of characteristics that clustered around four specific constructs or areas of mastery:
  - Experience with AT
  - Proficiency with AT
  - Knowledge of AT
  - Personal Identification with AT

Round 4

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In prep for Round 4

- The team restructured the factors into a matrix format and populated a rubric-style set of descriptions of progress a user might go through in their journey from novice to power-user.
- This was set up as a scoresheet so that points could be tallied for progress toward mastery for each indicator / predictor.

In Round 4

- The panel was asked to use this as a scoresheet or a guide for evaluating themselves and at least one other person on their mastery of some AT tool.
- Feedback and critique was solicited and collected.

Round 4: Test Drive of Mastery of AT Tool

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Would you like to take this tool out for a spin?

- Think of some AT that you feel particularly comfortable using (or one that you are uneasy about).
- Complete this scoresheet
- When through, think about the results and let us know whether you think the assessment was accurate…
- Complete feedback questions at the end

Image of CATM

To Try the AT Mastery Tool

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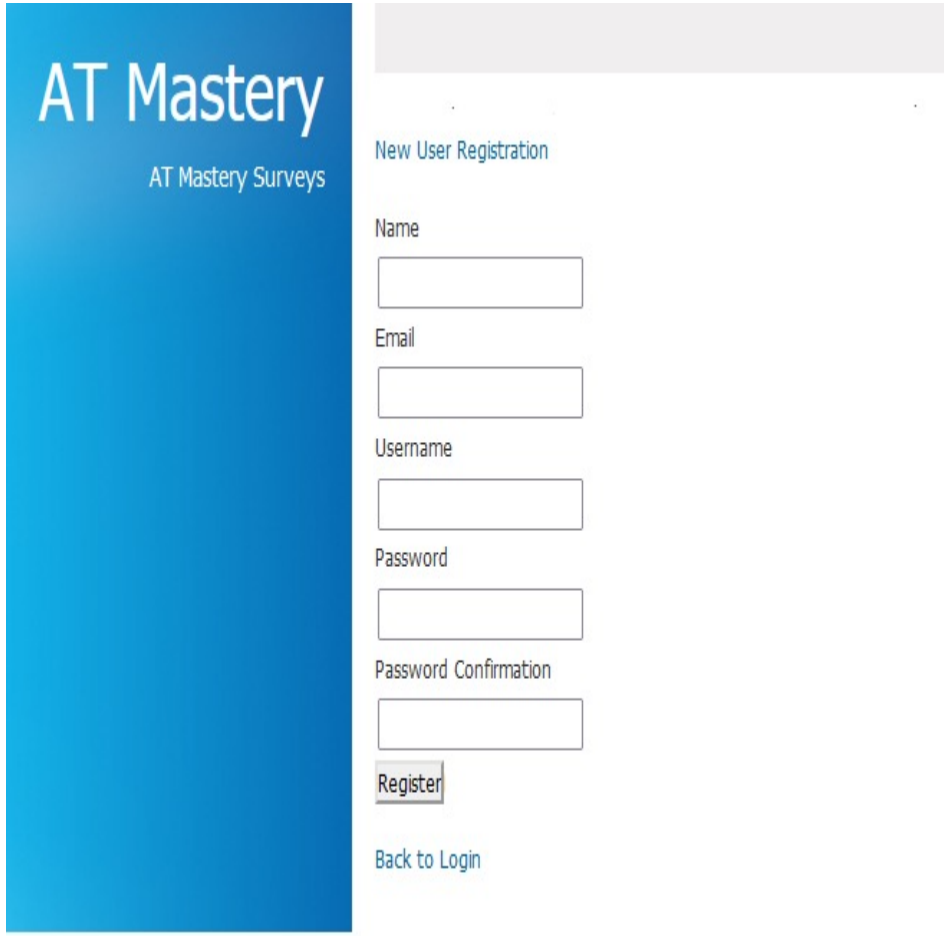
- Go to https://at-mastery.cidi.gatech.edu
- Click on Please Register Here
- Complete a New User Registration
  - Create username
  - Create & confirm password
- Click on Register
- Now login using username & password
- Click Add Survey



Follow up Questions: Applicability

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***How should this tool be used*?**

- Could the tool/scoresheet be used as a way to identify where an individual is in their journey toward mastery of AT?
- Could it help identify next steps toward AT mastery?
- Could it be used prescriptively to assist a student or an employee to improve performance/ effectiveness?
- Could it be used as an Indicator of preparedness, readiness?

Follow up Questions: Administration

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Who should administer this?

- Can anyone do it?
- Could it be a self-report?
- Should it only be done by AT specialists?
- Should some other set of qualifications be stipulated?

Follow up Questions: Contexts

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Where would this tool be applicable?

- K-12?
- Post-secondary?
- Transition?
- Workplace?
- Other?

Questions

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We appreciate your time!

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