

# Trends and Innovations in Assistive Technology for Special Education

## MADSEC Fall Conference – October/November 2019

### Program Description:

We all wish we could “keep up” with the constant changes in the “everyday” technologies in our lives. Keeping current with innovations in Assistive Technology (AT) designed or intended for students with disabilities – can be particularly challenging. In this session we discuss some trends and new types of AT including “everyday” technologies that can impact the functional skills of students. AT for transition will also be shared. Resources for how to review new technology will also be shared.

### Presenters:

**Kathy Adams, OTL, ATP** - Maine CITE Program Director

**John E. Brandt, MS.Ed.** – Maine CITE Training and Operations Coordinator

### Welcome - Intro

#### Goals

- Learn about Maine’s Assistive Technology (AT) Program
- Trends in Special Education
- Trends in Assistive Technology
- New changes, innovations and trends & “Everyday” tech.
- Lots of resources

#### Maine CITE

- Maine’s State AT Act Program - Created/funded thru Federal AT Act.
- Promotes AT through Information, Education, Technical Assistance, Services.
- Collaborate with many Maine AT providers, organizations, and policy makers.
- Visit our website - [mainecite.org](http://mainecite.org) - for
  - Webinars/training
  - Apps as AT
  - Funding info
  - AT Providers

#### Maine CITE Mission

- To improve access & acquisition of AT by people of all ages, all disabilities, in:
  - Education
  - Employment
  - Community Living
  - Information Tech & Telecommunications

## Maine CITE Demonstration and Loan Program

- AT Demo & Loan service providers:
  - Pine Tree Society
  - Spurwink-ALLTECH
  - CARES Inc
  - UM Farmington – Spenciner Center/Library
- Each has an AT Device Inventory – all link to AT4Maine.org

## Maine AEM Program

- Accessible Educational Materials for students
  - K-12
  - Higher Ed
- maine-aem.org

## Trends in Special Education

Adapted from *Five Top Technology Trends in Special Education* (see Footnote 1)

1. **Greater Personalization** – using technology track students’ performance and needs. Tailor curriculum to needs and identify effective instructional strategies.
2. **Early Screening** - "Early identification is key," said Krista Curran, the general manager for assessment and intervention at the company. "Schools and districts across the country are now [required to] use observational assessments to aid in that. We help them do it more efficiently.
3. **Virtual/Augmented Reality (VR/AR)** - For students with autism, navigating a crowded school hallway or lining up in the cafeteria can be highly fraught...Sean J. Smith believes that practice in a virtual-reality environment can help.
4. **Making Curricula Accessible for All** - More than 100 companies, universities, and nonprofit and advocacy organizations have signed a new "accessibility pledge" intended to make K-12 computer science education more inclusive.
5. **Making 'Open' More Open** - Schools' embrace of free open educational resources, or OER, (which educators may use, adapt, and share as they see fit) has many potential benefits. "The pdf is not our friend."

Tell us your ideas of “trends you see in technology and education (non-special & special)”

- Brain storming session

Kathy and John Trends list:

- More technology, in different places (outside the classroom and at home)
- Student Safety – securing buildings, securing students...
- Learning (and other things) at a distance
- Professional Development – more personal and customized
- New emphasis on Transition planning – the right technology can/will make a difference...
- New emphasis on lifelong learning (e.g., early childhood, post-secondary)
- Greater focus on mental health and behavioral issues
- Increasing numbers of students “on the spectrum”
- STEM. STEAM
- Career and Tech Education
- Artificial Intelligence AI
- Text-to-Speech and Speech-to-text
- Other (literacy) tools – word prediction, Alternative and Augmentative Communication (AAC)
- More tools to collaborate
- English Language Learners (ELL) – Language/communications barriers
- Access – features that are “burned in” to software and hardware
- “Transition to life” (life skills) taking on greater importance
- Telepresence - robots
- Tracking progress and data collection, analysis, sharing...
- Universal Design for Learning
- Using Assistive Technology to empower all learners.

### What are Assistive Technology and Services?

- AT Devices are any item, piece of equipment, system or product -- commercial or customized--that will increase, maintain or improve the functional capabilities of a person with a disability
- AT Services help a person learn about AT options and decide if using AT will benefit them.

### Low Tech to High Tech

- Many AT devices used in school may still be low tech (wheelchairs, positioning supports, PEC Systems, pencil grips – all are AT.)
- As education has become more “high” tech, so too has been the trend in AT.
- Increasingly, the technology we use in our daily lives – “everyday technology” – is also appearing in schools/educational settings (smart phones, wearable technology, voice-first/voice-controlled systems, robots!)
- Other examples found in schools... Chromebooks, iPads, MacBooks, Windows Laptops, Robots, Telepresence Tech, 3D Printing of Assistive Technology tools and supports.

## Trends and Changes in AT

- Move away from AT Devices sold by AT companies and DME vendors.
- Move toward integrating features into “everyday” technologies.
- Move toward “personal” technology (i.e., wearable, customizable).
- “Smaller is better.”
- “There’s an app for that...”

## Innovations in Everyday Technology

- Smart Home technology
- Wearable technology
- Artificial Intelligence (AI)
- Robots and Autonomous Technology
- Virtual Reality (VR) and Augmented Reality (AR)
- There’s an App for That!

## Special Education

- Age 0 to 21
- Wide range of function
  - Physical (large and fine motor)
  - Sensory (vision, hearing)
  - Cognitive/Developmental/Intellectual
  - Behavioral
  - Attention Deficit
- Academic and Life Skills
- Transition to Life

## Trends in Assistive Technology (image gallery)

- Mobility
  - Wheelchairs and walkers – power
  - Standing wheelchairs/exoskeletal suits
- Expressive Communications
  - Augmentative & Alternative Communication (AAC)
  - PECS (Picture Exchange Communication System)
  - Switches and controls
- Auditory Reception and Language
  - Hearing aids and amplification systems (PA in the classroom)
  - FM Loop Systems
  - Cochlear Implants
  - Closed Captioning and CART
  - Auto translators (for low hearing and ELL)
- Large and Fine Motor Skills AT

- Activities of Daily Living
- Modified writing tools
- Safety/Community Living
  - Wandering – Tracking
  - Project LifeSaver
    - National Program used with local Police, Fire, Rescue
    - In Maine:
      - Auburn PD
      - Lewiston PD
      - Brunswick PD
      - Cumberland County Sheriff’s Office
      - Scarborough PD
      - Ogunquit PD
- Social Skills
  - Programs like Aiko & Egor allow children to watch videos with a simple animation that models play skills and social behaviors based on research. Be sure to look for programs based on real research instead of anecdotal evidence.
  - [seebeneath.org/](http://seebeneath.org/)
- Motivation and Behavior
  - Rewards
  - Modeling appropriate behavior
  - Reducing inappropriate behavior
  - Self-Control - Calming
    - Fidgety – Stress Ball
    - Weighted Blanket
    - Headphones/Music
    - Lighting
  - Teach Town – Social skills services - [web.teachtown.com/](http://web.teachtown.com/)
  - Scene Speak – app that provides a framework to create interactive visual scene displays and social stories. - [goodkarmaapplications.com/scene-speak1.html](http://goodkarmaapplications.com/scene-speak1.html)
  - Social Stories Creator – Touch Autism - [touchautism.com/app/social-stories-creator-library/](http://touchautism.com/app/social-stories-creator-library/)
  - Behavior Tracking Pro – app - [behaviortrackerpro.com/](http://behaviortrackerpro.com/)
- AT for Self-Control and Calming
  - Daniel Tiger’s Grr-ific Feelings - [pbskids.org/apps/daniel-tigers-grr-ific-feelings.html](http://pbskids.org/apps/daniel-tigers-grr-ific-feelings.html)
  - Breathe, Think, Do With Sesame - [itunes.apple.com/us/app/breathe-think-do-with-sesame/id721853597?mt=8](http://itunes.apple.com/us/app/breathe-think-do-with-sesame/id721853597?mt=8)
  - Zones of Regulation - [zonesofregulation.com/index.html](http://zonesofregulation.com/index.html)
  - Tico Timer - [itunes.apple.com/us/app/tico-timer-your-fun-timer-for-children/id792953890?mt=8](http://itunes.apple.com/us/app/tico-timer-your-fun-timer-for-children/id792953890?mt=8)
  - Apps for Independence (MS-Word) – Apps list by Christine Martin, OTR/L – from SMACT Meeting 2/1/2019. - [mainecite.org/wp-content/uploads/2019/02/TransitionApps.docx](http://mainecite.org/wp-content/uploads/2019/02/TransitionApps.docx)

- 7 Apps to Help Younger Kids With Self-Control - [understood.org/en/school-learning/assistive-technology/finding-an-assistive-technology/7-apps-to-help-younger-kids-with-self-control](https://www.understood.org/en/school-learning/assistive-technology/finding-an-assistive-technology/7-apps-to-help-younger-kids-with-self-control)
- 5 fun fidgets for children with special needs - [eastersealstech.com/2016/02/10/5-fun-fidgets-for-children-with-special-needs/](https://eastersealstech.com/2016/02/10/5-fun-fidgets-for-children-with-special-needs/)
- Independence
  - Decision Making
    - Putting rules in a visual form.
    - Learn alternative behaviors.
  - Opportunities to improve self-regulation and self-management skills.
  - Opportunities for Repetitive practice.
  - Self-advocacy
  - Use video recordings:
    - Opportunities to try simulations of social situations.
    - Practice social skills.
- AT For Independence
  - Microsoft HoloLens – Augmented Reality - [microsoft.com/en-us/hololens](https://www.microsoft.com/en-us/hololens)
  - Fraunhofer Institute for Integrated Circuits – s/w that detects emotions – Research only
  - [Social Stories Creator](#) (app)
- Scheduling/Reminders/Organizers
  - Task Management
  - Time Management (timers)
  - Planning
  - Pictello – Task Management - [assistiveware.com/products/pictello](https://www.assistiveware.com/products/pictello)
  - CanPlan – Task Sequencing - [canassist.ca/EN/main/programs/technologies-and-devices/at-home/canplan.html](https://www.canassist.ca/EN/main/programs/technologies-and-devices/at-home/canplan.html)
  - Any.Do – to do list - [any.do/](https://www.any.do/)
  - See also Apps as AT on Maine CITE [maine cite.org/apps-as-assistive-technology-at/](https://www.maine cite.org/apps-as-assistive-technology-at/)
- Academic Skills
  - Reading
    - Bookshare,
    - Learning Ally
    - Text to Speech
  - Writing and Written Expression
    - Dictation
    - Book Creator [bookcreator.com/](https://www.bookcreator.com/)
    - Flipgrid [info.flipgrid.com](https://www.info.flipgrid.com)
    - Word Prediction
  - Arithmetic and Mathematics
  - Language Development
  - Sciences
- 100+ Best Apps for Autism {and other Learning Disabled Students}

- [adayinourshoes.com/apps-for-autism/](http://adayinourshoes.com/apps-for-autism/)
- Hillary Helps U Learn: [Apps and Extensions to support Dyslexia and other Reading Challenges.](#)

### Transition and Career Development

- Work Related Skills – learn and practice.
- “Soft” Skills – social skills development and practice.
- Collaborate with your VR Counselor.
- Job Accommodations – AT needed at the work site.
- PS: Start early!

### AT for Other Stuff

- Noise Cancelling headphones
- Lighting & Music to calm
- Med Management

### How do I know what’s good?

- Reviewing technology
  - Looking at consumer feedback from multiple sources
  - Read product reviews from multiple sources
  - Seek input in user groups and on-line lists
  - Use Apps as AT on Maine CITE [mainecite.org/apps-as-assistive-technology-at/](http://mainecite.org/apps-as-assistive-technology-at/)
    - Lists of Lists
    - Lists of Articles

### Now, and On the Horizon

- 3D printed to make AT.
- Augmented Reality – goggles to allow student to try out scenarios and see outcomes.
- Wearable tech – provide “private” cuing, directions, support and reminders.
- Assistive features built into Everyday Electronics.
  - Voice control - Apple

### What to do first

- Make sure school therapists are assessing AT needs
  - Include training recommendations.
  - Team/family training.
- Review needs annually or more frequently.
- List of providers - [mainecite.org/at-consultants-in-maine/](http://mainecite.org/at-consultants-in-maine/)

## AT Assessment

- Individualized - May require multiple sessions
  - Home, school, work, community.
- Assesses
  - Abilities and Needs
  - Challenges
  - Functional task(s) to be accomplished
  - Environment in which the AT will be used.
- Use low tech or medium tech first.
- Provide for trying new AT and training in use.
- Setting up AT may also be included.

## Assistive Technology is Individualized

- Stay person-centered through the AT process.
- We are all unique. Our experiences as we go through life will be our own.
- The individual's history and preferences should always be considered.
- Assistive technology is often trial and error – AT4Maine.org
- What works for one may not work at all for another.
- Communicate with your AT Services provider when things don't go as planned or additional training is needed.

## AT Assessment Process (supplemental – not on slides)

1. Identify the tasks to be accomplished
2. Gather existing background information
  - a. Functional abilities
  - b. Personal characteristics
  - c. AT experiences
3. Match student to equipment features:
  - a. Task to be accomplished
  - b. Environments to be used
  - c. Portability
  - d. Durability
  - e. Need to integrate with other AT devices
4. Examine potential devices:
  - a. Performance
  - b. Ease of use
  - c. Cost
  - d. Flexibility
  - e. Maintenance
  - f. Training Needs
5. Establish equipment trial use:
  - a. Accomplish the identified tasks
  - b. Fit the individuals' abilities



- c. Work across environments
6. Reconsider options by revisiting step 3
7. Develop training plans to support device use and implementation
  - a. Who will receive training
  - b. Timelines
  - c. Responsibilities
8. Identify funding sources
  - a. Rental programs from manufacturers
  - b. Used equipment sources
  - c. Third party payers
  - d. AT Financial Loan Programs
  - e. Charitable organizations
9. Define follow-up
  - a. Who will coordinate training, device modification, reassessment?
  - b. How will follow-up be facilitated
  - c. What is the time frame – weekly, monthly, yearly

Note: The AT Assessment

The AT itself is not the goal...the individual's increased learning and independence is the goal.

From *IPAT's AT Assessment Process*

<http://ndipat.org/resources/planning-for-ordelivering-at-services-documents>

## Resources

- [Maine CITE website – mainecite.org](http://mainecite.org)
  - Apps as AT
  - Training Webinars (we can add you to the mailing list!)
- [Maine Accessible Educational Materials \(AEM\) website – maine-aem.org](http://maine-aem.org)
  - Training webinars
  - Resources and Videos
  - Laws and Regulations

## Questions

Thank you

Maine CITE

Mainecite.org

[info@mainecite.org](mailto:info@mainecite.org)

## Footnotes

1. Five Top Technology Trends in Special Education

<https://www.edweek.org/ew/articles/2018/12/05/five-top-technology-trends-in-special-education.html>

Rev: 10/23/2019