READY NOW

Education Technology Resources

to Support Special Education Practitioners

and Children and Students with or At Risk for Disabilities

Fall, 2020

Hello Special Education Practitioners,

We thank you, and we are inspired by you for supporting children and students with or at risk for disabilities during this unprecedented and most challenging time. We know you are working long hours to ensure that children and families are getting what they need to succeed.

The ***Special Education Innovation Network*** is a newly formed national group of assistive technology and software developers, special education researchers, and nonprofits. Each member of the network has developed an education technology tool with an award from the Small Business Innovation Research (SBIR) programs at the U.S. Department of Education's Institute of Education Sciences (IES), the National Institutes of Health (NIH) and the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR) at the Department of Health and Human Services, and the National Science Foundation (NSF), and programs at the National Center for Special Education Research (NCSER) at IES and the Office of Special Education Programs (OSEP) at ED. Each of the innovative tools included in this guide were developed iteratively with feedback from special education practitioners, and families and children. All of the tools were evaluated by developers and their collaborators for usability, feasibility, and promise of learning or efficacy.

These research-based special education learning solutions are READY NOW for supporting special education practitioners or children and students with or at risk for disabilities: whether for teaching and supporting students in person, virtually, or a combination of both. These solutions are already leveraged nationally, used by thousands of early learning practitioners, students, and families. This curated collection includes personalized learning games and technologies that can be integrated with instruction, models for remote instruction, assistive and self-monitoring technologies, as well as platforms and dashboards that provide information to teachers and administrators. Many of these tools have won industry awards for innovation.

Please let us know if there are ways in which we can support your work during this time.

With Kind Regards,

All of us at the *Special Education Innovation Network*

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ATTAINMENT COMPANY, INC Verona, WI
Serving people with disabilities at school, work and home
Contact: Carol Stanger (CStanger@AttainmentCompany.com)

Intervention: Attainment Company, Inc. has been supporting people with disabilities achieve independence at school, work, home and in the community since 1979. With IES, Department of Education Phase II funding, Attainment developed Early Reading Skills Builder (Video Demo) and Access Language Arts (Video Demo). These titles offer reading instruction and middle-school level English Language Arts instruction, respectively, for students with intellectual disability. Early Reading Skills Builder (ERSB) directly follows the IES Project RAISE funded, Early Literacy Skills Builder, awarded to the University of North Carolina, Charlotte, published by the Attainment Company. Early Reading Skills Builder covers all National Reading Panel components, moving a student to a second-grade reading level. The blended curriculum has 26 Levels. The app includes professional recorded phonemes that can be blended together to serve as a student's voice. Access Language Arts includes 8 adapted literature titles age appropriate for middle school. The app provides instruction in vocabulary, prediction, reading comprehension, and writing and includes student progress monitoring. Both Early Reading Skills Builder and Access Language Arts incorporate evidence-based practices and best practice, constant time delay and least intrusive prompting.

Research Base: Attainment's apps are based on years of classroom experience and research on instruction for students with intellectual disability. Attainment partners with researchers at leading universities across the United States to incorporate a research-based foundation for the instructional pedagogy and to provide an independent evaluation of beta versions of the apps under development. Both Early Reading Skills Builder and Access Language Arts were evaluated by multiple single subject research protocols and randomized control research protocols across 2011 to 2016. All single subject research protocols showed positive gains. The Early Reading Skills Builder randomized control study included 32 students assigned to treatment and control groups. A repeated measures ANOVA and HLM analysis found that the treatment group outperformed the control group on literacy achievement. The Access Language Arts randomized control study included a total of 54 students. Research results showed a higher increase in assessment scores (vocabulary, comprehension, and writing) for the treatment group than the control group. Eight peer reviewed manuscripts have been published documenting the research basis behind Early Reading Skills Builder and Access Language Arts. Contact Attainment for more information on the research backing Early Reading Skills Builder and Access Language Arts.

Industry Awards for Innovation: Winner, 2014, DigitalPromise/ EdSurge DILA award for Research @Work.

How to Access Attainment's Products: *Attainment* apps are available on iPads, Tablets, Chromebooks, and other computers, both standalone and web-based. Attainment's apps are available as both a subscription service and for direct purchase to parents, schools and districts. Individual apps are available for purchase on the App store.

Government Awards Supporting R&D: Attainment has been supported by seven awards from the ED/IES SBIR program and the National Institute on Disability, Independent Living, and Rehabilitation Research.

AvenuePM
Penn State University and University of Minnesota
Software to help teachers monitor students' literacy development
Contact: Dr. Simon Hooper (simon@psu.edu)

Tool: AvenuePM (AvePM) is a software tool designed to meet a need frequently expressed by teachers of students who are Deaf or Hard of Hearing (D/HH). Existing progress monitoring systems rely on auditory-based measures that are often inappropriate for students with hearing loss. The system includes 8 developmentally appropriate student measures and hundreds of validated stimulus tasks (Video Demo). The student apps require no more than 1 minute to complete. AvePM is a formative assessment that is built on the principals of Curriculum Based Measurement (CBM). Several measures are suitable for hearing students as well as students who are D/HH. The system supports various communication modes, and includes gaming features, auto scoring, and immediate student feedback. Teachers can use custom tools to score students' video performances. Students' data are stored digitally and reproduced visually in progress charts. The management system uses an intuitive interface to share students' progress charts with colleagues, parents, and administrators. AvePM includes embedded professional development materials, technical, and instructional support tools avenuepmtools.com.

Research Base: Hundreds of teachers and thousands of students have used the AvePM suite with hundreds of tasks completed weekly. Each of the AvePM apps is grounded in previous research on literacy progress; for signed tasks specifically, ASL standards are used (Gallaudet University, 2018). Content alignment is demonstrated by attention to within grade level passage and task equivalence. Early literacy tasks in AvePM, such as picture naming, are aligned to early language measures, including Individual Growth and Development Indicators (IGDIs), MacArthur Communication Developmental Inventory (MCDI), CID-Teacher Assessment of Grammatical Structures-Early Childhood Vocabulary (TAGs). Sight words in AvePM were selected from the Dolche word list and are compatible with the American Sign Language-English linguistics. Vocabulary measures align with Common Core State Standards and national reading curricula. Writing assessments align with national and state assessment practices and the Common Core State Standards. The tasks in AvePM have demonstrated equivalence and stability through significant alternative forms and test-retest reliability estimates. Scoring reliability is established through automatic scoring for some tasks and significant intra- and inter-rater reliability estimates. Criterion related validity of the tasks has been previously established and reported in existing research. Construct validity is demonstrated as students' task level performance in AvePM is found to be significantly related to performance on standardized measures of reading, such as the DRA2 and MAP testing and end of year assessments and short cycle assessments.

How to Access the software: http://avepm.com

Government Awards Supporting R&D: The project has been supported by the U. S. Department of Education through three grants awarded in 2008, 2012, and 2017.

CAPTI-VOICE Buffalo, NY
'AAA' for teachers – an all-in-one assistive technology
platform that helps SPED teachers; Assess, Accommodate, and
Accelerate reading in remote and hybrid settings
Contact: Erica Aquila, Director of Sales at erica@captivoice.com

Intervention: Capti can help you measure, reduce, and overcome the summer slide and COVID-19 slide, improve overall literacy, and comply with accessibility regulations and IEPs. Capti enables you to provide equitable accommodations to your students with or at risk of disabilities, plan an RTI, and administer reading interventions. Check out the quick introduction Video Demos for Teachers and Students.

➤ Capti helps turn any text into an audiobook, make it accessible, and seamlessly deliver it to students. Capti helps reduce the time it takes to provide accommodations to students with vision loss, ADHD, dyslexia, autism, motor impairments, etc. Capti is universally accessible.

➤ Teachers can create and proctor accessible reading assignments and tests directly in Capti, or via Google Classroom, Schoology, Canvas, etc. They can create accessible assignments and monitor student activity with a real-time dashboard, while using Capti's secure browser environment.

➤ A built-in **ETS ReadReady™** diagnostic assessment offers an accurate measure of 5 foundational reading skills and reading comprehension. ReadReady can be used both to benchmark skills and as a diagnostic to inform the RTI strategy. Capti provides personalized activity recommendations for each reading skill.

➤ Capti empowers students to make texts accessible by themselves, helping foster their independence. Students can use the Capti Chrome browser extension to access any websites. Students can use Capti online to read e-books, assignments, papers, etc. on their Chromebooks, PCs, Macs, or iPads.

Research Results: Capti is grounded in years of research on universal access for students with disabilities. A Case Study at Cherry Creek School District revealed special education students who used Capti Voice improved 2-3 grade levels in silent and text-to-speech reading comprehension in 1 year. ETS ReadReady assessment is one of the most researched diagnostic tools based on 20+ years of reading science and assessment research, producing 11+ peer-reviewed research publications in top journals.

Industry Awards for Innovation: Winner, 2014 FCC Chairman's Award for Advancing Accessibility; Winner, 2015 MIT Tech Review Innovator under 35; Winner, 2017 EdTech Digest's "Best Special Needs Solution"; Finalist, 2020 EdTech Digest's "Special Needs/Assistive Technology" and "Literacy/Reading" categories.

How to Access Capti Voice and ETS ReadReady: Capti with ReadReady is available at www.captivoice.com and will work in any web browser; education subscription account is available. An optional Capti Browser extension is available in Chrome Web Store. The Capti Voice iOS App can be downloaded from AppStore.

Government Awards Supporting R&D: ED/IES SBIR Phase I awards (91990019C0024 and ED-IES-15-0019); ACL NIDILRR: SBIR Phase II Awards (90BI0023-01-00, H133S120067, H133S120055); National Institutes of Health: SBIR Phase I/II awards (1R43EY021962 and 2R44EY021962).

CAPs (The Content Acquisition Podcast Process)
University of Virginia, Charlottesville, VA
*Multimedia Tools that Enhance Student Content Knowledge*
Contact: Dr. Michael Kennedy (mjk3p@virginia.edu)

Intervention: The Content Acquisition Podcast Process (CAPs) (Video Demo) includes multimedia tools that support learning for students by providing explicit instruction with vivid imagery and limited text, and can be either recorded for student use, or used by a teacher delivering instruction (or both). CAPs recorded for student independent use are called CAP-S (for students), and unrecorded slides to be used by teachers are called CAP-TS (teacher slides). Each CAP embeds evidence-based practices to facilitate student understanding, such as: student-friendly definitions, examples and non-examples, a demonstration, and opportunities for students to respond to various prompts. The team also maintains a library of CAPs for Teachers (CAP-T) which introduce and model use of key evidence-based and high-leverage practices. All CAPs are informed by and reflect Mayer's Cognitive Theory of Multimedia Learning (CTML).   Although research has demonstrated the efficacy of using CAPs with middle- and high-school students, they can be used across kindergarten through 12th grade levels.

Research Base: Over 20 studies have been conducted to evaluate various forms of CAPs. They are effective learning tools for secondary students, preservice teachers, and in-service teachers.   In terms of CAP-S effectiveness for students, researchers conducted a quasi-experimental study in 2014 to determine whether students (32 with disabilities and 109 without disabilities) learned social studies vocabulary word meanings better using the CAP-S or by reading text. Students with learning disabilities learned term meanings quicker when they had access to the CAP-S and were able to close the achievement gap with peers without disabilities that did not use the CAP-S. In 2015, a total of 278 high-school students participated in a study in which researchers reported further evidence students who accessed CAP-S adhering to the principles of the CTML outperformed vocabulary knowledge growth compared to their peers who watched videos that did not. Studies from 2017 (N = 26 students with disabilities), 2018 (N = 1,779 students with 251 with disabilities), and 2020 (N = 43 students with disabilities) also indicated that the use of CAP-S have potential to improve middle-school students science vocabulary knowledge. With more views of the CAP-S, students demonstrated improved performance on science vocabulary assessments. For more information about research regarding CAP-S or other versions of the CAP product line, please visit here.

How to Access CAP Products: A series of CAP slides that can be flexibly used in science are available at www.vocabsupport.com, and CAP-Ts are available at www.spedintro.com.

Government Awards Supporting R&D: The research and development of CAPs have been supported by the Institute of Education Sciences/National Center for Special Education Research (#R324B13002), and the Office of Special Education Programs (H327S190004).
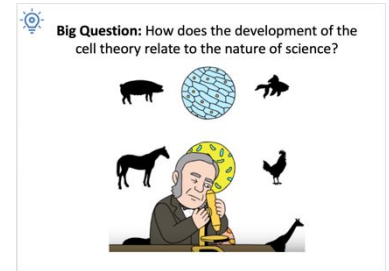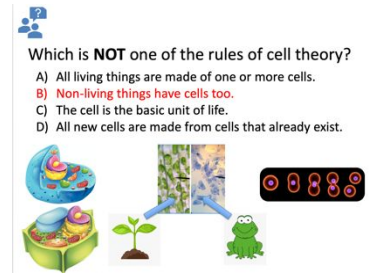
EDUCATION MODIFIED Boston, MA
**Research-based collaboration hub for special populations teams**
Contact: Melissa Corto: Melissa@educationmodified.com

Intervention Education Modified is a special education platform that helps **schools and special education practitioners** go beyond regulatory compliance to improve instruction for students with special needs. Education Modified does three things that are unique in the K12 education space. First, we extract the essential information and data from dense & opaque IEP documents, reformat it to make it teacher-friendly, and put it all in one place -- The Learning Biography™ -- that's easily accessible whenever the teacher needs it. Second, in the Learning Library™ we curate over 350 research-based strategies based on a child's disability classification and learning needs to allow teachers to track what's working (or not) for every child. Lastly the Learning Dashboard™ holds students' IEP goals and provides progress monitoring tools. The result is improved teacher effectiveness & improved student outcomes. View a video demo of the platform in action here.

Research In partnership with WestEd, a leading not-for-profit education research firm, EdMod has completed Phase I usability and feasibility studies of six teachers, paired in teams consisting of one special and one general educator, to learn whether the IEP goal feature is feasible for teachers to 1) access a student's IEP within their daily workflow; 2) collaborate with team members around progress monitoring of IEP goals; and 3) implement appropriate instructional strategies for special education students in their classrooms. The usability study indicated that EdMod was easy to use, and that teachers were eager to further explore the data collection resources contained within the feature. The feasibility study revealed that EdMod was a highly valuable resource for managing information and adjusting teaching practices based on evidence of student improvement. The promising results have formed the basis for the Phase II research examining how EdMod shows promise for improving special educators' ability to efficiently and effectively implement student IEPs.

Current Research Opportunity Education Modified is recruiting for a new opportunity to pilot beginning Fall 2020. We are seeking three district partners with 2-3 schools willing to participate each. Participating schools will be able to utilize the Education Modified platform whether instruction is occuring in-person, remotely or both. Participating teachers will receive $500 for completing various research activities (e.g., surveys, interview) . Please email Melissa Corto ASAP if interested.
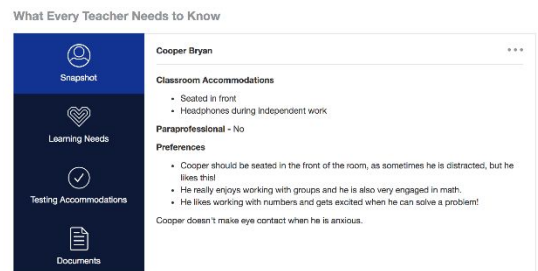
COVID-19 Webinar EdMod recently co-hosted a webinar with WestEd, Newsela, and Quill about the digital challenges in Special Ed before and after COVID-19 and the challenges of remote IEP progress monitoring. Over 250 educators attended. View a recording of the webinar here.

Awards Education Modified has been recognized by leading organizations as winners of NewSchools Venture Fund Special Education Challenge, the MIT Solve Teacher & Educator Challenge

Access EdMod Education Modified is available as a subscription service for schools and districts. EdMod integrates with leading LMSs such as Schoology, JumpRope & Canvas or can be accessed as a standalone platform. ***Signup for a demo*** here.

Government Awards Supporting R & D: ED/IES SBIR awards in 2018 and 2019.

ENVISIONIT (EIT) Ohio State University, Columbus, OH
Career Readiness Curriculum
Contact: Andrew Buck andrew.buck@osumc.edu

Intervention: EnvisionIT (EIT) is a free, evidence-based, standards-aligned, digital curriculum designed to teach **middle and high school students with and without disabilities** fundamental knowledge and skills in four competency areas: (1) Transition Planning and Career Readiness; (2) Information Technology (IT) Literacy; (3) Reading and Writing; and, (4) Financial Literacy. Throughout the curriculum, student's complete activities to build a comprehensive Transition Portfolio, which includes: (a) transition assessments; (b) career research; (c) postsecondary goals; (d) résumé and cover letter; and more. Students' digital portfolios may be updated across grade levels, referenced to enhance the quality of Individualized Education Program (IEP) transition plans or student success plans, and leveraged to increase student engagement in transition planning and career advising meetings. The full curriculum may be implemented as a stand-alone course across an academic year or delivered as two semester electives. Several abbreviated course models are also ready-made to implement with students through blended or distance learning options. Educators are encouraged to customize EIT materials to meet the unique needs of their students. EIT is written at a middle school reading level, but a Reduced Reading Level course model is available to support students reading below 6th grade. For more information, see the EIT Handout.

Research Base: EIT is recognized by the National Technical Assistance Center on Transition as an effective practice: https://transitionta.org/effectivepractices. In experimental and quasi-experimental studies (2010*, 2017**, 2020***), EIT has been shown to increase student skills in Career Readiness (N=287*; N=826***), IT Literacy (N=287*; N=108**), and Reading Comprehension (N=307**). Lombardi et al. (2020) found that "all students who received the intervention (n=593) showed significant gains in self-reported career readiness scores as compared with their peers who did not receive the intervention (n=233)," [and] "students showed the largest gain in career readiness scores when they were taught more of the curriculum." For published articles, see https://nisonger.osu.edu/research/envision-it/research/. A sustainability survey sent to known contacts in November 2019, identified 62 active sites across 6 states (24 recurring and 38 new). The affirmative respondents indicated that 259 special educators and 2,096 students with disabilities, as well as 67 general educators and 2,367 general education students had used or were currently using the curriculum. Customizability, teaching career skills, and supporting IDEA transition requirements were the top reasons for using EIT. Since November 2019, over 450 new users have joined our Schoology group.

How to Access EnvisionIT: EIT is optimized for the Schoology Learning Management System, but it is also available in Canvas Commons and housed within our Google Drive Library: https://go.osu.edu/eitlibrary. Schoology users may access EIT courses from the public resource library or join our teacher group and community of practice with the following access code: Q933T-7PJSF. Google Classroom users may download/upload, attach, or link directly to curriculum materials housed in the EIT Google Drive Library. Canvas users may also use the EIT Google Drive library to build a course from scratch or search Canvas Commons for EnvisionIT course options. Teacher resources available in our Schoology Group and Google Drive Library include: Getting Started Guides, Curriculum Site Maps, Pacing Guides, and Sample Portfolios.

Government Awards Supporting R&D: EnvisionIT is a public domain product funded by the U.S. Department of Education, Office of Special Education Programs, Grant Award H327S120022.

ESCOLAR University of Oregon, Eugene, OR
Online science curriculum for middle school
Contact: Dr. Fatima Elvira Terrazas-Arellanes
(fatima@uoregon.edu)

Intervention: ESCOLAR (Etext Supports for Collaborative Online Learning and Academic Reading) (Video Demo) supports **middle-school students, including those with learning disabilities,** in learning science in an engaging online environment. The ESCOLAR program is a web-based curriculum with a complete set of 15 science units aligned to all middle school Next Generation Science Standards. ESCOLAR units are intended for teachers' use in their classrooms as their core instructional materials, replacing traditional textbooks. The ESCOLAR program can also be used by home-schooled students whose parents can monitor their children's learning and progress. Features of the curriculum include: (a) an interactive, flexible, multi-modal learning environment with built-in supports for students with various disabilities and learning styles (Video Demo) and (b) teacher-friendly resources, such as an online training course and automated reports of student progress (Video Demo). This free instructional technology tool gives teachers and students a rich, motivating learning environment with interactive materials, guided inquiry-based activities, opportunities to collaborate, and on-screen reading enhancements to promote comprehension of scientific text. See these resources on the ESCOLAR website.

Research Base: Research since 2009 has included case studies, a pilot study, and a randomized controlled trial, all published in peer-reviewed journals—has demonstrated the usability, feasibility, and efficacy of the intervention to support students with specific learning disorders, as well as general education students and English language learners. Results of a randomized controlled trial (published by the International journal of Science Education in 2018) conducted with 2,303 middle school students and 71 teachers across 13 schools in two states indicated that online units effectively deepened science knowledge across all three student groups. Comparing treatment and control students on pretest-to-posttest improvement on standards-based content-specific assessments, there were statistically significant mean differences (17% improvement in the treatment group vs. 6% in the control group; $p < .001$); no significant interactions were found between treatment condition and learning disability or English learner status, indicating that these two groups performed similarly to their peers. The ESCOLAR team worked with science experts from the Biological Sciences Curriculum Study (BSCS) and local teachers to develop this curriculum.

How to Access ESCOLAR's Products: ESCOLAR can be used on any iPad, tablet, Chromebook, laptop, or desktop with an Internet connection. The program is available at no cost to the user. Watch this Video Demo to learn how to create an account.

Government Awards Supporting R&D: ESCOLAR has been supported by three federal awards from the National Science Foundation and the Office of Special Education Programs at the US Department of Education.

Future Quest Island-Explorations (FQI-E)
Institute for Community Inclusion at UMass Boston
Contact: Lori Cooney, lori.cooney@umb.edu

Intervention: Future Quest Island-Explorations (FQI-E) is an online accessible college & career readiness curriculum that uses gaming strategies to motivate and support improved self-concept, social and emotional competence, and early college and career awareness for upper elementary students with and without disability in grades 3-5 using an evidenced-based "Possible Selves" framework.

Implementing the Curriculum: This web-based curriculum is designed to be implemented online over a 6-8-week period over approximately 8-10 hours and can be incorporated into multiple subject domains. FQI-E is fully accessible; all text has accompanying narration; all images have alt text; and the website works on all devices with Internet access and is screen reader compatible. A teacher toolkit provides lesson plans for each unit containing 2-3 activities to supplement the online activities. Each lesson plan includes an activity overview, instructional materials for students, and accessibility guidance.

Students create a personalized avatar and progress through a series of quests which appear as islands and are asked to participate in activities exploring their hopes, dreams, fears, and goals. After each quest, student responses are configured into badges (displayed as icons) used to populate branches of their "Possible Selves Tree" symbolizing who they are as a person, friend, learner, and worker. For each island visited and lesson completed, students receive digital coins, which can be used to purchase items to populate a virtual personalized hut. After completing the curriculum, students receive a certificate of completion, a completed Possible Selves Tree, and all activities are recorded in an electronic Individualized Learning Plan (eILP) to support instructional planning.

Research Overview: Intentional, proactive instruction in college and career exploration in elementary school can support future career planning, and these emerging constructs can serve as a foundation for career development in middle and high school and into adulthood (Carvalho, Pocinho, & Fernandes, 2018; Porfeli, Hartung, & Vondracek, 2008). The curriculum was designed to help students expand career awareness and connecting this learning to their personal self-concept using Possible Selves theory (Oyserman, Destin, & Novin, 2015). FQI-E builds on a previously developed middle school curriculum addressing college and career readiness, social-emotional, and online safety skills (Grigal, Cooney, & Hart, 2018).

Research Opportunity: The FQI-E project is recruiting teachers in grades 3-5 for a pilot beginning in spring of 2021. We are seeking 20+ elementary school teachers with a total of 300+ students willing to participate. Participants will be offered use of the curriculum and teacher toolkit for online instructional use. Participating teachers will receive their choice of a gift card, stipend, or PDPs for implementing the curriculum and various research activities (surveys/interviews). For more information on our research study, please visit our research study informational website or email lori.cooney@umb.edu.

Government Awards Supporting FQI: Future Quest Island - Explorations was developed with funding from the U.S. Department of Education, Office of Special Education Programs, Stepping-Up Technology Implementation program (H327S180002).

I-CONNECT University of Kansas, Lawrence, KS
Self-Monitoring Intervention for Special Education
Contact: Dr. Howard Wills, hpwills@ku.edu

Intervention: I-Connect (Video Demo) is a digital self-monitoring intervention for **special education students, practitioners, and families**. Students access I-Connect and monitor their behaviors on their mobile device, using the iOS app or Google Play Store app. I-Connect Is free to download, and has no additional charges within the app. The I-Connect mobile app and intervention have been successful in the traditional classroom, but I-Connect is also is flexible enough to support students who are participating in virtual learning at home! I-Connect is completely customizable to each individual student, this includes creating custom target behaviors, prompt frequency, and goals. These custom settings can also be added and adjusted at any time. As students monitor on the mobile app, their response data is collected and stored on the app and in the I-Connect Portal for easy progress monitoring. The educator who created the student's account is able to see their progress in the portal through the I-Connect chart function, and assign stakeholders (e.g. parents or outside service providers) access to view these charts. Teachers can download a PDF copy of the charts for use at IEP and student meetings, or digitally access them at any time. Students are also able to access their own progress charts within the I-Connect mobile app. For use in the classroom, or at home virtually in your classroom.

Research Base: Self-monitoring using technology (i.e., I-Connect) or more traditional methods (i.e., pen and paper) has been found to be a beneficial intervention for students with or at risk for emotional behavioral disorders and autism spectrum disorder. Technology-based self-monitoring is a more efficient and less intrusive way to develop positive behaviors and reduce challenging behaviors. I-Connect's self-monitoring app was developed by experts in the field with several years of experience working in classrooms to translate years of research on pen and paper self-monitoring into a simple and efficient mobile app. Within the first year of launching, I-Connect has been used by 850 educators, parents and service providers in schools, at home and in the communities with 450 students across the United States. Feedback from users indicates I-Connect is a high quality and useful tool to address needs relevant to students receiving special education or intensive intervention. I-Connect has demonstrated positive outcomes and overall effectiveness in 9 peer reviewed and published single-case design studies. Specifically, the use of I-Connect has resulted in decreased disruptive behavior in classrooms and increased task engagement, task completion and academic accuracy. For example, Rosenbloom et al. (2019) implemented I-Connect with 4 adolescents with autism, resulting in improvements in on-task and task completion behaviors across all four participants and reductions in disruptive behavior. I-Connect has been tested successfully in general and special education environments along with community and workplace settings. Current research is underway to investigate use of I-Connect as a Tier-2 PBIS/MTSS intervention. For more information on the research supporting I-Connect visit our website (iconnect.ku.edu)!

How to Access I-Connect's Products: Teachers, parents, and specialists set up student accounts in the I-Connect Portal using any internet browser and monitor student progress there. *I-Connect is* currently available on iPads, Tablets, and other mobile devices and it's COMING SOON to Desktops and Chromebooks! I-Connect is freely available to schools, districts, families and community providers. Follow us on Facebook or Instagram to keep up-to-date with the I-Connect Desktop app drop date!

Government Awards Supporting R&D: ED's Office of Special Education (H327S170001) and the US Department of Health, National Institutes on Disability, Independent Living, Rehabilitation (90DP0058)

[KinderTEK®](#) **Eugene, OR**
iPad app teaching critical math skills and building fluency
**Contact: Dr. Mari Strand Cary
(mscary@uoregon.edu)**

Intervention: KinderTEK's individualized educational system provides instruction and targeted practice shown to support deep and lasting learning. Systematic, focused lesson content and *Pretest - Guided Practice - Test* lesson structures, combined with KinderTEK's continuous progress monitoring ensure students demonstrate mastery in each phase of learning before moving on to more independent and challenging tasks. Carefully chosen practice opportunities, "just enough" scaffolding and timely academic feedback is provided in every lesson. KinderTEK is a versatile tool and can be used in class, at home, or a combination of the two: students can use the same account and teachers can customize settings and view reports no matter where students learn. KinderTEK empowers each student to experience success and gain confidence as they learn, become proficient at, and review KinderTEK's Common Core-aligned kindergarten content ([KinderTEK curriculum](#)). Students are motivated through engaging content, intermittent rewards, positive feedback, mastering new content and unlocking new activities and activity center time in each session. Robust reports on KinderTEK's Data Dashboard facilitate data-driven decision making and customizable features enable teachers to adjust the instructional experience to meet the needs of individual students as they progress through the curriculum.

Research Base: KinderTEK was developed with [years of iterative research](#) by teacher educators and faculty with extensive classroom and special education teaching experience. Several small-scale studies in real classrooms provided evaluation for custom components which were integrated into the app and reporting system. A 2018-19 quasi-experimental study of 123 students revealed that relatively brief exposure to KinderTEK produced gains on distal measures of early numeracy and exploratory analyses suggested that earlier and longer use of KinderTEK may have provided a benefit for students most at risk in math. In further investigation through dissemination studies and full-scale efficacy trials, KinderTEK was seen by hundreds of teachers and thousands of students across the US and Canada. Analyses of complete efficacy data with over 2000 students and 150 educators over a period of three years are in progress. Meanwhile, parents and teachers have independently turned to KinderTEK for use by their students. With the pandemic, we offered KinderTEK as a stopgap for distance learning and, as we head into the fall, we encourage educators to integrate KinderTEK into their systematic, planned math instruction, particularly for students at-risk in math. More information can be found on the website at https://kindertek.com/why-ktek/research

How to Access KinderTEK Products: KinderTEK is available in the App store for use on any iPad. The Basic version is a [standalone app](#), with a Pro version for more implementation flexibility and robust reporting available via [subscription](#).

Government Awards Supporting R&D: The research reported here was supported by the U.S. Department of Education through the Institute of Education Sciences Grants R324A110286 and R305A170044 and the Office of Special Education Programs Grant H327S140019, all to the University of Oregon.

<u>**MATHSHARE**</u> **Benetech, Palo Alto, CA**
Mathshare, an inclusive digital math editor
Contact: Dr. Lisa Wadors Verne (<u>lisaw@benetech.org</u>**)**

Intervention: One in three students struggle with learning math. The challenge for many is working through multiple steps to solve problems. This can be difficult for students who struggle to organize their thinking or have learning differences. There are many online math tools, but none allow students to work on problems step by step. This makes it harder for students to develop critical problem-solving skills and to demonstrate learning. Mathshare (Video Demo) is the first of its kind, an inclusive digital math editor that gives all students (with and without disabilities) the unprecedented ability to interact with math problems online and to easily demonstrate their math skills in a digital environment. With Mathshare, students can break problems into parts, solve them step by step, and take notes to show their reasoning. This makes it easier for students to stay focused and for teachers to follow their students' thinking. Mathshare integrates with many learning management systems to make assigning and grading math equations even easier. Benetech has been supporting people with disabilities for over 20 years. Our goal is to provide free accessible education materials to students so that they can fully participate in inclusive environments. Mathshare has been used by 10,000 teachers, parents and students.

Research: In 2019 we conducted a pilot with 14 students in a virtual applied calculus class. Students interacted with the tool to solve their equations and reported their experiences. Overall the students reported that while using the Mathshare tool, they were able to keep their work organized, and were better able to explain their steps to their instructor. The teacher reported that she was able to personalize her instruction better because she had a better understanding of the students' knowledge compared to having the students just submit the answers. We also conduct regular user testing and consult with accessibility experts to continually enhance the product. Mathshare has been implemented on a wide-scale basis since COVID19, and has been demonstrated to be usable and feasible for remote use and learning.

How to Access Mathshare: Freely available at https://mathshare.benetech.org/.

Government Awards Supporting R&D: The research and development of Benetech's Mathshare has been supported by the Office of Special Education Programs (H327B10001).

<u>**MOD SYSTEM**</u>**: Juniper Gardens Children's Project, University of Kansas**
Making Online Decisions System for Data-based Decision Making
Contact: Dr. Jay Buzhardt (jaybuz@ku.edu)
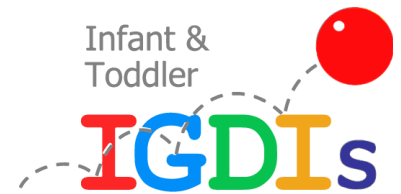
Intervention: Designed **for infant-toddler educators and home visitors**, the MOD guides language intervention decision making based on child data ([Video Demo](#)). Like personal support tools (GPS, Pedometer, Fit-Bit™, biometric monitoring apps, etc.), the MOD provides ongoing, tailored guidance based on children's proficiency on the Early Communication Indicator (ECI), a play-based assessment administered and scored by educators. Intervention recommendations come from the Promoting Communication Tools for Advancing Language of Kids (PC TALK). The MOD's decision-making framework is based on five questions: (1) Is there a problem? Children who score below their age-based benchmark on the ECI are identified as at risk for delay. (2) What is causing the problem? Known clinical and family factors linked to poor progress are considered and documented. (3) What PC TALK strategies should be used? The MOD recommends specific PC TALK strategies individualized to the child's performance on the ECI and educators' clinical knowledge of the family. (4) How much are the PC TALK strategies being used? The educator documents within the MOD how they teach parents about the strategies and how much parents report using the strategies. (5) Are the strategies working? Over time, the MOD reports to the HV the child's performance on the ECI before and after services began; and given a lack of improvement, recommends revising services.

Research Base: To date, the MOD has been tested in two separate longitudinal cluster randomized control trials in Early Head Start home visiting contexts. In both studies, home visitors were randomized to use the MOD to guide their decision making or use a self-guided approach (business as usual). Also, both groups used the ECI for progress monitoring and PC TALK strategies for children scoring below benchmark on the ECI. The first study, in a single midwestern state with 124 families and 48 home visitors, found that children served by MOD home visitors had significantly greater growth on the ECI than children served by self-guided home visitors. The second study, in four states with 214 families and 163 home visitors, found that families served by MOD home visitors used more PC TALK strategies. Also, MOD children showed stronger growth on the ECI, as well as the raw and standard scores on the Preschool Language Scale (PLS-5) after six months. Effect sizes nearly doubled for MOD families on 12-month follow-up. For more information about MOD and IGDI research, see
https://igdi.ku.edu/research/publications/

How to Access IGDIs and the MOD: The MOD System is available through the online IGDI Platform, accessible through any web browser. The IGDI Mobile App can be downloaded through the Google Play Store, but is not required. Use of the IGDI and MOD system requires training and certification by IGDI trainers at Juniper Gardens Children's Project (https://igdi.ku.edu/contact-us/).

Government Awards Supporting R&D: *Office of Special Education Programs*: 2 completed Steppingstones of Technology awards (H327A040004, R324A120344), Current Stepping-Up Technology award (H327S140024); *Institute of Education Sciences*: Goal 3 Efficacy award (R324A120365), Current Goal 2 Development award (R324A170141)

myASLTech Wheaton, MD
Toolkit for American Sign Language support to curricula
Contact: Corinne Vinopol (corinne@idrt.com)

Intervention: myASLTech (Video Demo) is an online toolkit that helps **educators of students who are deaf or hard of hearing** create, archive, and share American Sign Language (ASL)-supported educational materials and quizzes, support text with sign graphics, concept graphics, and sign video in real time, and play games and view ASL-interpreted stories that reinforce ASL and English literacy. Most of the software tools are tethered to a database that gives ASL graphic and video translations of over 10,550 words, phrases, idioms, symbols, numbers, and letters. The database is upgraded monthly in response to curricular needs, current events, and user requests. myASLTech contains the following software tools: (1) myASLDictionary: View sign graphics, conceptual graphics, English text, and ASL video clips for words and definitions; (2) mySignGenerator: Input unlimited text and get sign graphic supports in real time. Options for supporting text include hiding signs, showing concept graphics, fingerspelling, and choosing the right sign when there is more than one for an English word. Play a video clip translation of the final product; (3) myASLPublisher: Enables users to create any form of print material using any of the myASLTech graphics (over 30,000). Users also can import their own pictures onto the canvas, add text, draw, color, etc. (4) myASLQuizmaker: Create custom quizzes with options for supporting text using mySignGenerator, graphics, or YouTube videos. Assign the quizzes to students online within time constraints, grade, return, and maintain student statistics; (5) myASLThesaurus: Describe signs by their cheremes (i.e., physical descriptors like hand shape) and find them within myASLDictionary. (6) myASLTemplates: Create custom crossword puzzles, word searches, fingerspelling scrambles, flashcards, matching games, and BINGO cards within seconds. Re-scramble to generate new games with the same vocabulary. Options for ASL and concept graphics.; (7) myASLStories: Watch original, beautifully illustrated, and ASL-translated stories that incorporate elements of Deaf Culture, and reinforce both English and ASL literacy; (8) myASLGames: Play games using conceptual categories or all of the myASLDictionary database to reinforce vocabulary, memory, and conceptualization. Included is a curriculum called, Signing Science for Kids, which contains information, games, quizzes, and animations about clouds, wind, and temperature. myASLTech members not only can save their creations (e.g., quizzes, questions, posters, worksheets) on their desktops and print them, but also archive them in "banks" on a cloud-hosted server.

Research Base: myASLtech was developed and refined with input from deaf and hearing consumers, including students, teachers of deaf students, interpreters, parents, and administrators. Some tools have been translated into Arabic and Moroccan Sign Language. In research to test usability and feasibility, myASLTech was evaluated by eight practitioners over a two-hour period. Survey responses by these individuals indicated high levels of agreement that they understood how the technology functioned, acknowledged that it readily integrates into assessment tools for students who were deaf or hard of hearing, and indicated that the tool met their data collection and reporting needs. In another pilot implementation with 14 educators, results revealed that users found the tool useful for building a class roster, creating and reporting on new quizzes, assigning quizzes to students, and grading quizzes. In the spring of 2020, myASLTech was used successfully free-of-charge by thousands of parents and teachers to support remote learning during COVID-19. As the 2020-2021 school year has begun, many of these individuals and schools continue to use the tools for remote, as well as in-person, instruction.

How to Access myASLTech: Access is here and membership information here.

Government Awards Supporting R&D: ED/IES SBIR, the Office of Special Education Programs, and the National Science Foundation.

NUMBERSHIRE Eugene, OR
An evidence-based math game for students grades K-2. Come visit us in Tally-ho!
Contact: Drs. Hank Fien, Nancy Nelson-Fien, and Lina Shanley at the Center on Teaching and Learning, University of Oregon at ns1its@uoregon.edu

Intervention: NumberShire (Video Demo) Level 1 is an educational mathematics video game developed to build students' whole number concepts and skills. Through an immersive, gaming and learning platform, NumberShire provides 48 sessions (~15 minutes of gameplay per session) set within a Renaissance-style village in the fairytale-inspired medieval kingdom of NumberShire. Each session is aligned with the Common Core State Standards for Mathematics with a focus on first grade topics. In each session, the village elder and other characters explicitly teach students new math skills and provide ample practice opportunities. Students receive timely and engaging feedback about their game play performance and earn visual rewards, such as virtual pets or new costumes for their character after completing each session. Session design is based on the growing research base on effective mathematics instruction for struggling learners, and its differentiated learning pathway offers individualized and intensified instruction to meet students' instructional needs. The Teacher Dashboard allows teachers to monitor student performance and progress in NumberShire, and make data-based decisions about how to adjust and individualize instruction for student learning. From the Teacher Dashboard, teachers can also access the Resource Center which includes instructional resources on best practices in early math instruction, multi-tiered systems of support, implementing NumberShire, and differentiating instruction for students with diverse learning needs. Two versions of NumberShire exist (WebGL and iOS), allowing NumberShire to run on all popular web browsers on PC or Mac platforms and on iPads.

Research Results: A randomized controlled trial conducted in 26 first grade classrooms found that students in the NumberShire group (n = 125) performed better than control students (n = 125) on a math assessment designed to measure learning in the Common Core State Standards for Mathematics. Results of the 8-week pilot study demonstrate that NumberShire can significantly improve mathematics learning in the domains of Counting and Cardinality, Number and Operations in Base Ten, and Operations and Algebraic Thinking. Similarly, preliminary findings from a recent efficacy study with over 1,500 students demonstrated positive effects of NumberShire on various measures of math achievement.

How to Access NumberShire: Visit www.numbershire.com for more information

PROJECT CORE University of North Carolina at Chapel Hill
Classroom-based Communication Instruction for Students with Significant Cognitive Disabilities and Complex Communication Needs
Contact: Karen Erickson, PhD (karen_erickson@med.unc.edu), Center for Literacy & Disability Studies, Department of Allied Health Sciences

Intervention: Project Core is aimed at supporting the communication needs of **students with significant cognitive disabilities who are not yet using speech, sign language or symbols to communication**. The Project Core implementation model applies evidence-based practices in AAC (see an intro Video Demo). Project Core features a prioritized set of core vocabulary words called the Universal Core (see Erickson, Geist, Hatch & Quick, 2019). Several open-source formats are available to support student access through direct pointing or touch, eye gaze selection, and partner-assisted scanning. Files to create three dimensional (3D) symbols are available for students who are blind. The Universal Core vocabulary is offered on many commercial communication applications (apps) and speech generating devices (SGDs). A series of 12 professional development modules and Instructional planning guides are provided to support implementation.

Research: The open-source Universal Core vocabulary formats have been downloaded more than 160,000 times since they were initially made available (2016). To guide selection of suitable formats, Project Core offers an online tool that presents a series of simple questions to direct educators to a format that has good potential as a starting point, based on each student's sensory and physical access needs. This tool has been used a total of 13,495 times since initial introduction (2016) with 21% of this total usage (2,870 times) occurring between March to August 2020 after schools were closed due to COVID-19. Similarly, the self-directed professional development modules have been accessed more than 85,000 times since initial launch (2016) and weekly usage has increased exponentially (up approximately 489%) during the pandemic, with about 273 modules completed each week prior to schools closing and about 1,608 being completed each week after moving to remote learning. Project Core has been pilot tested with professionals (*n*=152) and students (*n*=175) across four states (FL, MD, NC, PA) with preliminary evidence of increases in student communication ability level as measured by the Communication Matrix after teachers participated in the available professional development and implemented the targeted intervention practices (see Geist et al., 2020). Additionally, results from one participating school on State Mandated End-of-Grade Alternate Assessment in ELA suggest that improvements in communication skills achieved through Project Core generalized in important ways (see Erickson et al., in press; Hillside Developmental Center). A collection of articles summarizing the research-base for the targeted intervention practices are available at: http://www.project-core.com/research-and-publications/.

Government Award Supporting R&D: Project Core was funded by a Stepping-up Technology Implementation grant from the U.S. Department of Education, Office of Special Education Programs.

[RAILWAY HERO](#)**, an accessible online math game**
Bridge Multimedia, New York, NY, in collaboration with WNET NY Public Media
Contact: Wendy Sapp, Ph.D., wsapp@bridgemultimedia.com
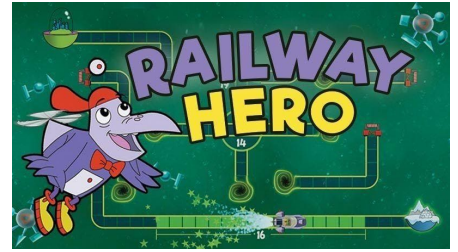
Intervention: Railway Hero combines Bridge Multimedia's accessibility know-how with the award-winning experience of flagship PBS station WNET to create an accessible, multilevel streaming game designed to teach addition skills to children 5-7 years old. Set in the world of PBS KIDS math adventure series, *Cyberchase,* the game engages players with characters and locations from the popular animated stories. The player progresses through 15 levels of increasing difficulty using addition to repair the sabotaged Cybertrain tracks and save the day! The game is accessible for players with visual impairments, hearing impairments, learning disabilities, sensory processing disorders/ASD, and intellectual disabilities. A narratively integrated Settings dashboard allows young players to take responsibility for adjusting game settings to meet their needs and preferences. Since the game's launch in 2019, the game has been streamed more than 2 million times. Additional information about using Railway Hero as a learning tool and individualizing settings for a child is provided in a parent and teacher friendly resource titled ***Supporting your Child with Disabilities with Digital Learning Games,*** [available here](#). The knowledge gained through this project was synthesized into the ***Accessible Game Developers Guide***, which provides concrete information for game developers to guide their inclusion of accessibility features in games. The guide or training on the guide can be requested through the contact listed above.

Research base: Multiple studies have documented the effectiveness of *Cyberchase* in improving math related skills in children across socio-economic, ethnic/racial, and gender lines. *Railway Hero* was extensively field tested with children with and without disabilities. Based on this field testing and input from a broad range of accessibility experts many "accessibility features" are seamlessly incorporated into the standard game play such as the use of scaffolding/hints and closed captioning, while others such as audio description or color settings can be easily adjusted by the child or an adult.

How to access: *Railway Hero* can be played on any computer or mobile device. The game is freely accessible on the PBS Kids [app or website](#).

Upcoming accessible game: Bridge Multimedia and WNET partnered to create a second accessible game, *Echo Explorers***,** that teaches children about coordinates, grids, and cardinal directions. In addition to the accessibility features in *Railway Hero, Echo Explorer* also includes options to play with a switch or eye-tracking/head-tracking device. *Echo Explorers* is set to launch the week of October 24, 2020 and will be available for free on the PBS Kids site and app (www.pbskids.org).

Awards: 2020 Cynopsis Best of the Best Awards: Nominee- Best Online Interactive Game for Kids; 2019 International Serious Play Awards: Winner – Gold; 2019 Davey Awards: Silver Winner for Best Games & Apps; 2019 W3 Awards: Winner – Gold; 2019 Webby Awards: Honoree

Government awards supporting R&D: US Department of Education, Office of Special Education, Grants H327C150007 and H327C150008

Reading and Writing Adventure Time! (formerly known as the Braille Challenge Mobile App)
California State University, Los Angeles
Contact: Cheryl Kamei-Hannan, Ph.D.; ckameih@calstatela.edu

Intervention: *Reading Adventure Time!* and *Writing Adventure Time!* are two educational technology apps that integrate digital literacy to support literacy instruction for students (in grades 1-6) who read braille. Specifically designed to seamlessly function with iPad and screen access software (Voice Over) and a braille display, the apps are accessible to students who are visually impaired (VI). The educational technology tool uses instructional gaming strategies to motivate students to significantly improve their literacy skills through a series of pre/post tests, progress monitoring assessments, and evidence-based activities. *Reading Adventure Time!* and *Writing Adventure Time!* are built off of the iBraille Challenge (iBC), a former Stepping Up Technology Grant (H327S120007). Recent efforts have implemented new modules for teachers, family members, and education specialists to practice their braille skills. Funding for the braille training in these new modules is supported through Rehabilitation Services Administration, (H235E190002).

Research-base: *Reading Adventure Time!* and *Writing Adventure Time!* have been pilot tested with over 50 students who showed significant gains in reading and technology skills (Kamei-Hannan, et. al. 2020, Songkhao, 2018). Students who used the *Reading Adventure Time!* app showed gains in reading and technology skills. Student reading speeds, as measured by the app, mirror the reading speeds found in prior research (e.g., the ABC Braille Study). The impact on technology skills, for teachers, caregivers, and students was much greater than anticipated. Songkhao (2018) found that students who used the *Writing Adventure Time!* app had more correct responses on writing dictation activities. She also found that over time, students who used the app had fewer errors when they repeated the same test and when they completed different multiple tests.

**How to access:** The app is currently being updated and will be available in the app store beginning 2021

Government awards: Writing dictation and reading activities within the app are being supported through Braille Brain: A Braille Training Program for pre/in-service Teachers of Students with Visual Impairments (TSVI), paraprofessionals, and other educational team members (H235E190002)

SPEAK AGENT Rockville, MD

Academic Language
Contact: Ben Grimley (ben@speakagent.com)
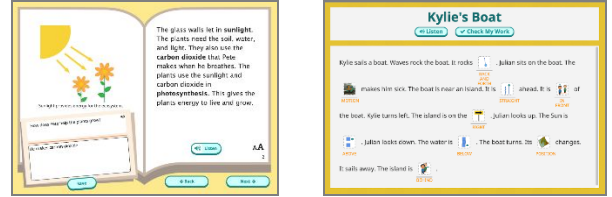
Intervention: Speak Agent (Video Demo) engages students in their K-8 STEM curriculum content through digital listening, speaking, reading, writing, and problem-solving activities. Each activity includes an array of learning supports spanning across language domains. Using Speak Agent, students accelerate acquisition of STEM concept knowledge and development of academic communication skills. School districts use Speak Agent as a K-8 supplemental program in both physical and virtual classrooms. It delivers a suite of activities for teacher-led instruction and independent practice. Each of the 20 activity types in Speak Agent engages students in one of these modes using a combination of multimodal gameplay, visual aids, interactive stories and/or expressive language. The program is particularly effective for special populations who experience an academic language deficit. Speak Agent products include: Elementary Math, Middle-Grades Math, Algebra for English Learners, Elementary Science, and Bilingual Early STEM. Each product includes a teacher dashboard that displays real-time progress, formative assessment data, and items added to the student's digital portfolio. Speak Agent offers year-round professional learning, including 1:1 teacher coaching, a PD knowledge base and video series, and a unique Academic Language Strategies course that showcases research-based instructional strategies.

Research Base: Speak Agent is certified in Research-Based Design. Each of its 20 activity types across every product applies research-based strategies using its academic language learning model. These strategies were applied to product design and development in partnership with Digital Promise's Learner Variability Project, among other research partners. Support for learning differences, while a relatively new area for Speak Agent, is a critical part of our work in Learner Variability. A small-scale, single-case design study at the Kennedy Krieger Institute (N=8, ASD), sponsored by the Institute of Education Sciences, provided initial feasibility and usability data. These data suggest that we may be able to mirror the success we are beginning to see with English Learners. A QED study (N=74) in 2017-2018 by Rockman et al found that 2nd grade students using Speak Agent acquired 40 to 52 new TEKS-aligned STEM concepts at a 210% faster rate than students in the control group receiving standard instruction. The effect was repeated in two 12-week phases. In 2018, Montgomery County (N=67) found similar results over a 12-week period in both STEM and reading. Both populations were 80% English Learner.

As of 2020, Speak Agent serves more than 40,000 active students each week and growing. Many of our users are Resource Teachers using it to push into mainstream STEM classes and better support their SPED students. Teachers report being able to learn the basics in a 45-minute training session. Speak Agent products also closely align with the classroom curriculum week by week. So, when students are learning about life cycles, habitats, fractions, or skip counting, Speak Agent is teaching the relevant, curriculum-aligned academic language to support that work.

Industry Awards for Innovation: Winner, 2016 NewSchools Ignite ELL Challenge; Certified Product, Research-Based Design.

How to Access Speak Agent Products: Speak Agent is provided to school districts as an annual subscription. It runs on any computer or mobile platform and supports in-classroom use, virtual classroom use, remote independent practice, and hybrid models. Learn more at speakagent.com.

Government Awards Supporting R&D: Awards from ED/IES SBIR the NSF SBIR programs.

STEP UP AT University of Miami, Miami, FL
Online toolkit to support the use of assistive technology or early literacy activities in the classroom and home.
Contact: Dr. Michelle Schladant (mschladant@med.miami.edu)

Intervention: Step UP AT is an online toolkit designed to help **parents and teachers learn to support early literacy, for children 3-5 years old**, using assistive technology (AT) resources. Teachers and parents that participate in the program benefit from online learning modules (6 for teachers and 4 for families), virtual coaching sessions, and access to the Step Up AT Device Lending Library (https://faast.org/stepup/). All materials are available in Spanish and English. The teacher online modules range in topics from a general overview of AT devices to implementation strategies that address classroom level and individual academic needs (Video Demo). Teachers receive one on one coaching and immediate feedback following classroom observations, in both the physical and virtual setting. Teacher and coach work together to identify best AT practices that align with the student's IEP goals and create an action plan with detailed steps and resources to achieve the plan's objective. The intervention is facilitated remotely using video conferencing calls and online platforms; coaching has also been provided for virtual learning support. Participating families are provided access to online modules, are encouraged to borrow AT devices, and can schedule sessions with one of our coaches to demonstrate the use of the device and strategies in daily activities at home (Video Demo).

Research Base: Step Up AT's practices are rooted in the Division for Early Childhood (DEC) recommended practices utilizing the RE-AIM implementation science framework. Our goals for teachers are to increase their knowledge, confidence, beliefs and overall use of AT and inclusive practices in the classroom. Step Up AT has served 74 teachers and 135 families in Miami-Dade and Broward counties over 4 years. During a clustered waitlist randomized control design with 42 teacher and 68 child-family participants, teachers reported an increase in knowledge about AT, more positive beliefs about AT, and higher confidence with using AT following the intervention. Teacher use of AT in the classroom also improved. Children's early literacy abilities improved, specifically in the domain of alphabet knowledge, when compared to students who did not participate in the Step Up AT program.

How to Access Step Up AT: Log onto www.stepupat.com on any smart device. Request access to the online learning modules in either English or Spanish. Contact us to learn of availability for virtual coaching.

Government Awards Supporting R&D: Step Up AT is supported by the US Department of Education Office of Special Education Programs (OSEP).

TEACHLEY, New York, NY
Essential math program to promote deep thinking and learning in K-5
Contact: Dr. Kara Carpenter (kara@teachley.com)

Intervention: Teachley (Video Demo) supports teaching and deepens K-5 math learning for struggling learners by building students' conceptual understanding, fluency, and problem solving skills. Teachley includes a suite of learning games and a teacher dashboard that personalize students' learning of mathematics and can be used for in-class, remote, or blended teaching. Teachley games help special education students and those who struggle in math to develop efficient strategies and deeper conceptual understanding through interactive visual models. Students can explore the connections between facts. For example in *Addimals*, they can see how 5 + 6 is just one more than 5 + 5. The games focus on teaching strategies because that is where special education students tend to struggle. The Teachley Connect dashboard provides teachers real-time insights to differentiate math instruction.
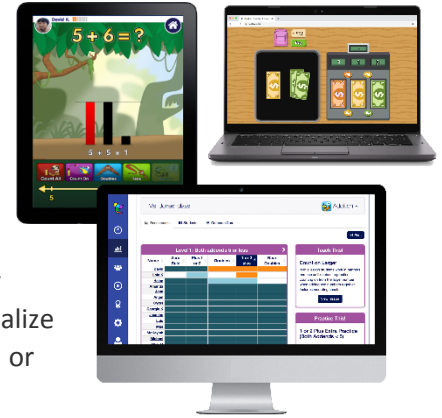
Research: Teachley's apps are based on years of classroom teaching experience and research on children's cognitive development, mathematics pedagogy, and game design. Teachley embeds research into every stage of design, from pencil/paper mockups to small-scale learning studies to larger classroom evaluations. Thousands of teachers have successfully implemented Teachley in classrooms (with a 96% re-enrollment) and hundreds of thousands of children have played the apps in class and at home. Researchers have conducted several research studies to evaluate the promise of Teachley to improve learning. In a 2014 randomized controlled trial with 80 students in grades 1 to 4, students who were randomly assigned to play Teachley increased in math fluency and strategic math talk outcomes compared those who played other math games. In a 2018 randomized control study with 133 students, students in grades 3 to 5 who played Teachley's *Fractions Boost* game significantly improved their fractions estimation compared to students in the control group who played other fractions games. In the same study third graders significantly improved on a set of released NAEP fractions questions. In a 2018 study of the Teachley Connect dashboard, teachers reported they could easily use the students' data to monitor app usage, prepare for meetings, and to plan intervention lessons. For more information on Teachley's research, see teachley.com/research.
Industry Awards for Innovation: Winner, 2014 Apple Design Award; 2016 Balefire Labs Top-Rated, 2014 Parent Choice Award; 2017 Children's Technology Review Editor's Choice.

How to Access Teachley's Products: *Teachley* is available as a subscription service for schools and districts. Teachley games are available for use on iPad, tablets, Chromebooks, and other computers (web-based). The apps may also be purchased individually on the App store.
Government Awards Supporting R&D: Teachley has been supported with 12 awards from the Small Business Innovation Research Program at ED/IES SBIR, the National Science Foundation, and the National Institutes of Health.

WEGO-RIITE: Writing Efficiently with Graphic Organizers – Responsive Instruction while Implementing Technology Effectively
George Mason University, Fairfax VA
Contact: Drs. Anya Evmenova (aevmenov@gmu.edu)

Intervention: WEGO-RIITE aims to promote an effective integration of a technology-based graphic organizer (TBGO) with embedded evidence-based strategies, video models, and opportunities for data-driven decision making in order to improve the quality of persuasive essay writing across the curriculum for **students with and without high-incidence disabilities struggling with writing** in elementary and middle schools as well as alternative settings. Features built into the Chrome-based TBGO include:

- ✔ Table-to-text graphic organizer scaffolding the writing process
- ✔ Mnemonic IDEAS to guide persuasive essay composition
- ✔ Self-regulated learning strategies (e.g., goal setting, self-instruction, self-monitoring, self-evaluation)
- ✔ Universal Design for Learning (UDL) supports (e.g., audio comments, text hints, text-to-speech)
- ✔ Video models to introduce students to high-quality essay parts and steps required to complete TBGO.

Teacher Dashboard: In addition to features that support students' writing performance, the Teacher Dashboard offers opportunities for teachers to make data-driven decisions about their writing instruction. It stores and organizes data on students' use of the TBGO as well as offers a side-by-side presentation of the students' completed TBGO and an interactive analytic writing rubric. For any low-scored writing component, teachers are encouraged to make an individualized instructional decision using the data-driven decision-making maps embedded into the rubric. The maps offer suggestions for targeted instruction, including video models and remedial activities to assign to students and/or explicit 1:1 teacher lead check-in to further support students with writing a persuasive essay.

Research Results: Various versions of the TBGO went through a series of iterations based on student and teacher feedback, as well as student performance across multiple research studies. Research has been conducted with more than 1,000 students across 4th – 12th grade, including more than 700 students with high-incidence disabilities and/or those who are struggling with writing. Almost 100 teachers from various settings (inclusive, co-taught, pull-out, self-contained, including specialized schools for students with disabilities) used the TBGO and provided their feedback. Overall, the majority of struggling writers in grades 4th – 12th improved the quantity of essay writing (e.g., number of words and sentences) *while all* students, regardless of ability, improved the quality of essay writing (e.g., writing quality score). When given sufficient practice, students maintained progress when the TBGO was removed. All teachers and students reported to be very satisfied with the tool and believed the TBGO helped students to become better writers.

How to Access TBGO: Visit www.wego.gmu.edu for more information.

Funding Information: TBGO was developed with funding from the U.S. Department of Education, Office of Special Education Programs, Stepping-Up Technology Implementation program (H327S120011 and H327S180004).